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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR 1991

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

SUBCOMMITTEE ON THE DEPARTMENT OF THE INTERIOR AND
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PART 6

TESTIMONY OF PUBLIC WITNESSES FOR ENERGY PROGRAMS

RESOURCE MANAGEMENT PROGRAMS

Printed for the use of the Committee on Appropriations

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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR 1991

ENERGY AND MINERALS PROGRAMS OUTSIDE WITNESSES

THURSDAY, MARCH 8, 1990.

AGRICULTURAL AND NATURAL RESOURCE CONCERNS

WITNESS

ROBERT L. BAKER, NATIONAL DEMOCRATIC POLICY COMMITTEE

Mr. **DICKS** [acting chairman]. Is Mr. Baker here? Let's start. The committee will come to order.

Our first witness is Mr. Robert L. Baker representing the National Democratic Policy Committee. We will submit your statement for the record, and you have five minutes to summarize. I want to make that announcement. We're going to stay on schedule as best we can out of fairness to everyone including the Chairman.

Mr. **BAKER**. Chairman Dicks, my name is Robert Baker, and I am here on behalf of the National Democratic Policy Committee.

For many years, I was a livestock and grain farmer in Iowa. Then I was a farm banker. I come here before you today to state that we are still in the throws of an unprecedented farm and food emergency both in this country and around the world.

This results from several factors but principally because of the recent years of radical environmentalist policies replacing scientifically sound management of nature, water, the land and air, and the general physical economy.

Your committee has oversight over the Interior Department and the related agencies that are responsible for this state of emergency. We call on you to take remedial measures.

I will focus on the issues of land use and water. First, however, to illustrate the clear present danger of the extent of rampant environmentalism in Government policy, I call to your attention the case of William Ruckelshaus that has just come to light in the news. Mr. Ruckelshaus is a man long active in Government policymaking who prided himself in making policy decisions such as the ban on the use of DDT to kill mosquitoes, not on any scientific basis, but on adherence to perceived environmentalist concerns. Because he was not booted out of power, lives have been lost.

The facts have now come forward that it was the unscientific decision of Mr. Ruckelshaus to ban the asbestos used in industry for such purposes as the putty to seal the O-rings in the shuttle program that led to the O-ring erosion that, in turn, resulted in the Challenger disaster and the deaths of our astronauts.

Now for the immediate issue of food and water and Government policy. At present in the world, there are an estimated two billion people malnourished, which is two out of every five people on earth. An estimated 500 million people died needlessly of lack of food in the last decade.

The Senate agricultural hearing last month on hunger in America estimated that 25 million Americans are in need of food relief. This picture adds up to a food emergency. We should take emergency measures to rapidly expand food output. Instead, all we hear about is saving the environment, not people. This is just warmed over Ruckelshaus style—immorality.

We call on this committee to exercise its oversight and appropriations power to undertake the following needed emergency measures. First, maximum use of available crop and pasture land for expanding food, fiber, and livestock output. Second, maximum effort to improve agricultural and grazing land, construct terraces and other drainage systems, build ponds, and improve waterway channels. Third, maximum effort to complete water projects and initiate new projects, collaborate with other Government agencies such as the Army Corps of Engineers to see that such projects as the Garrison Dam in the upper Missouri watershed are completed for irrigation, water control, and power.

Initiate new projects, where feasible, in particular the North American water power line that will divert water in the MacKenzie river system southward away from the Arctic and down along the Rocky mountain trench for use in Canada, the United States, and Mexico.

Fourth, initiate action in collaboration with the Department of Agriculture to institute financial emergency measures to restore our failing agricultural and natural resource-based industry. Order a stay on farm foreclosures, power plants, and other designated categories of essential economic activity, and channel low interest (2 percent) loans through the Treasury Department to these activities.

Instead of this approach, there are programs in the Interior Department to add more land to the so-called wilderness areas, to preserve swamps, to prohibit land improvements, and even penalize those involved in improvements.

Texas dairy farmers, for example, have been fined thousands of dollars in 1989 for manure runoff in watersheds near Fort Worth. Instead of this travesty, we need massive campaigns nationally; a civil engineering, that will provide safe and abundant water for households, industry, and agricultural life.

We ask you in the name of the millions now starving and hungry to return again to what we used to call "common sense." Start dismantling the econological lobby that has insinuated itself into Government over the last 20 years. No one elected them.

Mr. DICKS. Your time is up, so we appreciate your views. I would say this: I know Mr. Ruckelshaus personally. I doubt very much that the decisions he made were just frivolous without any scientific underpinning. If you've got some evidence of that, I'd certainly like to see it.

Mr. **Baker**. Sure. Okay. We'll provide that.

[The prepared statement of Robert Baker follows:]

Testimony to the House Appropriations Subcommittee for Interior and Related Agencies

Hearing, March 8, 1990

from the National Democratic Policy Committee
P.O. Box 17729
Washington, D.C. 20041-0729

presented by Robert L. Baker

Chairman Whitten, Ladies and Gentlemen:

My name is Robert Baker and I am here today on behalf of the National Democratic Policy Committee. For many years I was a livestock and grain farmer in Iowa; then I was a farm banker. Today I work with the national Democratic Policy Committee on farm and food policies.

I come before you today to state that we are in the throes of an unprecedented farm and food emergency--both in this country and around the world. This results from several factors, but principally because of the recent years of radical environmentalist public policies replacing scientifically sound management of nature--water, the land and air, and the general physical economy.

Your Committee has oversight over the Interior Department and the related agencies that are culpable for this state of emergency, and we call on you to take the remedial measures called for.

I will focus on the issues of land use and water. In order to present an outline of what your Committee should undertake, I will give a short background on the domestic and world food crisis.

First, however, to illustrate the clear and present danger of the extent of rampant, kook environmentalism in government policy, I call to your attention the case of William Ruckelshaus that has just come to light in the news. Mr. Ruckelshaus is a man long active in government policy-making, who prided himself on making policy decisions--such as the ban on the use of DDT to kill mosquitoes, NOT on any scientific basis, but on adherence to perceived "environmentalist concerns." And because he was not booted out of power, lives have been lost.

The facts have now come forward that it was the unscientific decision of Mr. Ruckelshaus to ban the asbestos used in industry for such purposes as the O-rings in the Shuttle program and elsewhere, that led to inadequate O-ring fabrication, that in turn, resulted in the Challenger disaster and the deaths of our astronauts. Engineers all along the line knew of the inferior, unreliable performance of the O-rings--the result of Ruckelshaus, but there is the widespread view among the thinking public that the government has turned "green." Crazed environmentalism has taken over. Reason is dead.

Now, for the immediate issue of food and water, and government policy. At present in the world, there are an estimated 2 billion people malnourished, which is two out of every five people on earth. An estimated five hundred million people died needlessly of lack of food in the last decade.

Millions are malnourished and dependent on food relief in our own country. The Senate Agriculture Hearing last month on "Hunger in America" estimated that 25 million Americans are in need.

Clearly, this picture adds up to a food emergency. Therefore, we should take emergency measures, along the lines of those taken by the War Mobilization Board in the World War II, to rapidly expand food output. Instead, all we hear about is saving the environment, not people. This is just warmed over Ruckelshaus-style imbecility and immorality.

We call on this Committee to exercise its oversight and appropriations power to undertake the following needed emergency measures:

1. Maximum use of available crop and pasture land for expanding food, fiber and livestock output.

2. Maximum effort to improve agricultural and grazing lands--construct terraces, and other drainage systems, build ponds, improve waterway channels, etc.

3. Maximum effort to complete water projects and initiate new projects. Collaborate with other government agencies such as the Army Corps of Engineers to see that such projects as the Garrison Dam, in the upper Missouri watershed, are completed for irrigation and water and power control. Initiate new projects where feasible, and in particular, the so-called NAWAPA--the North American Water and Power Alliance, that would divert water in the MacKenzie River system shouthward, away from the Arctic, and down along the Rocky mountain trench, for use in Canada, the United States and Mexico.

4. Initiate action and collaboration with the Department of Agriculture to institute financial emergency measures to restore our failing agricultural and natural resources-based industries. Order a stay on foreclosures of farms, power plants, and other designated categories of essential economic activity. Channel low-interest (2%) loans through the Treasury Department to these activities.

Instead of this approach, there are programs in the Interior Department to add more land to so-called "wilderness areas," to preserve swamps, to prohibit land improvements, and to even penalize those involved in improvements. Texas dairy farmers, for example, have been fined thousands of dollars in 1989 for manure run-off, in watersheds near Ft. Worth. Instead of this travesty, we need a massive campaign nationally of civil engineering that will provide safe and abundant water for households, industy and agriculture alike.

We ask you in the name of the millions now starving, to return again to what we used to call "common sense."

Start dismantling the "ecological lobby' that has insinuated itself into government over the last twenty years. Noone elected them. Today, "conservation," "ecology" and words that once had a decent meaning, are being used as an excuse for genocide.

Noone elected William K. Reilly, for example. He--like Ruckelshaus, comes from the shadowy Conservation Foundation and World Wildlife Fund, whose predecessor organizations earlier this century actually advocated eugenics to protect nature by exterminating so-called lesser, darker races. I provide written documentation to the committee on the background of these networks.

The outlook of these interloper, "ecology" individuals and entities is that "wilderness" and the absence of human activity, is superior to the beauty and bounty of man's improvements and care for nature.

The exaltation of so-called "wilderness" is a view alien to the founding of the Department of Interior, the Department of Agriculture and other government agencies charged with responsibility for the treasures of the nation.

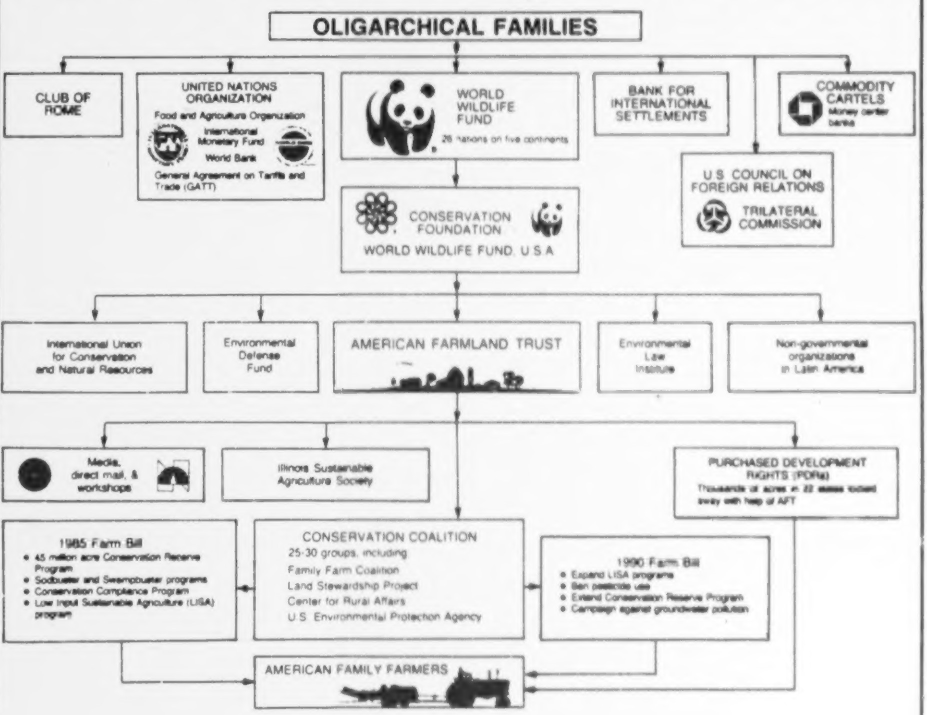
We ask that you act, for the good of our Nation, under God, to restore "common sense" policies: Shutdown the ecology lobby in government, and take emergency action to save human lives and restore the environment at the same time.

--end--

Documents appended available from the National Democratic Policy Committee.

FOOD FOR PEACE

Eastern Establishment Money Funds 'Alternative Agriculture' Hoax


OLIGARCHICAL FAMILIES
CLUB OF ROME
UNITED NATIONS ORGANIZATION
Food and Agriculture Organization
International Monetary Fund
World Bank
General Agreement on Tariffs and Trade (GATT)
WORLD WILDLIFE FUND
26 nations on five continents
BANK FOR INTERNATIONAL SETTLEMENTS
COMMODITY CARTELS
Money center banks
U.S. COUNCIL ON FOREIGN RELATIONS
TRILATERAL COMMISSION
CONSERVATION FOUNDATION
WORLD WILDLIFE FUND, U.S.A.
International Union for Conservation and Natural Resources
Environmental Defense Fund
AMERICAN FARMLAND TRUST
Environmental Law Institute
Non-governmental organizations in Latin America
Media, direct mail, & workshops
Illinois Sustainable Agriculture Society
PURCHASED DEVELOPMENT RIGHTS (PDRs)
Thousands of acres in 22 states locked away with help of AFT
1985 Farm Bill
• 45 million acre Conservation Reserve Program
• Sodbuster and Swampbuster programs
• Conservation Compliance Program
• Low Input Sustainable Agriculture (LISA) program
CONSERVATION COALITION
25-30 groups, including
Family Farm Coalition
Land Stewardship Project
Center for Rural Affairs
U.S. Environmental Protection Agency
1990 Farm Bill
• Expand LISA programs
• Ban pesticide use
• Extend Conservation Reserve Program
• Campaign against groundwater pollution
AMERICAN FAMILY FARMERS

by Robert L Baker

Timed to coincide with the debate for the new 1990 Farm (food) Bill there is a barrage of opinion manipulating publicity promoting something called "sustainable agriculture" This is a vague term for farm production "practices" covering anything and everything from non-use of synthetic farm chemicals, to the use of horses and mules, to "organic" farming, "biological" systems, and what have you

Food producers are being led to believe that the movement for sustainable agriculture is the result of an upwelling of concern by the family farmer and rural community to safeguard and preserve nature In fact, it is little more than a propaganda operation, that is indoctrinating farmers to accept the mentality of a serf rather than fight to produce bountiful crops for a fair price

You are supposed to think that the "Big Money" boys, the financial elites that own the international chemical companies, the absentee landlords, government bureaucrats, and financiers all oppose sustainable agriculture and "organic" methods

If you think this, then send in your money to buy the Brooklyn Bridge They have a "deal" for you

The Big Money boys who directly or indirectly own the chemical and fertilizer companies are the main bankrollers of the sustainable agriculture movement That is why most advocacy groups aren't fighting for a fair price for farmers, but are encouraging them to produce less food, and take land out of production

A New Feudalism

The truth is that powerful financial elites have formed and financed an extensive lobby network to use the issue of "environmental protection" and "sustainable" farming practices, as a cover story for reintroducing neo-feudalism into American agriculture Now this network is plotting even more extreme measures, under the cloak of "environmentalism" for the 1990 farm law

Organizing the media hype for "sustainable agriculture" is a wealthy grouping of "Old Family Oligarchs" who can be traced back to the Roman Empire This group is interconnected to organizations such as the Trilateral Commission and the Club of Rome Sustainable agriculture is being promoted by the same people who want to control food production, destroy independent family farms, set up a one-world government and reduce the world population

You can get the quickest overview of this neo-feudalist lobby by starting with a group in Washington, D C that calls itself the Conservation Coalition

According to Neil Schaller, head of the USDA's Low Input Sustainable Agriculture Program (LISA), the Conservation Coalition, the American Farmland Trust, and the Soil Conservation Society of America, are three of the leading groups promoting sustainable agriculture methods Not surprising to this author, all three can be reached at the same phone number and have the same Washington, D C address

The 1985 Farm Bill

Now pull back the curtain and look at the real source of "agricultural conservation policy" that became law in the 1985 Farm Bill

The Conservation Coalition was created by the American Farmland Trust (AFT) Steve Adams, director on the Board of American Farmland Trust, says, "We were the facilitators in bringing the Conservation Coalition together American Farmland Trust caused this group to come together"

"We were very instrumental in bringing together primary conservation groups and presented a 'White Paper' to the two agricultural committees on what we felt should be in the 1985 Farm Bill from a conservation point of view," Adams said, describing AFT's role in drafting the legislation

Look more closely at the leading players in the Conservation Coalition The head of the conservation coalition, Bob Gray, says that even though there is no formal organization, "virtually all of the main environmental conservation groups, such as the Audubon Society, the Sierra Club, the National Wildlife Federation, and 20 to 25 *others* were involved in submitting policy proposals to the 1985 Farm Bill" The group lobbied for the most radical conservation proposals since the 1930s and is, according to Gray "probably the most succesful conservation group"

Gray says, "I think we had a tremendous impact" in implementing the 45 million acre 10-year Conservation Reserve Program (CRP), the sod buster and swamp buster programs, the conservation compliance program, and the funding for USDA research into "low input sustainable agriculture," in the 1985 Farm Bill

Now, the coalition will he promoting proposals for the 1990 Farm Bill to control ground water and pesticide use, extend the CRP, and remove barriers to sustainable agriculture, said Gray

The Conservation Foundation

Now, pull back another curtain, and you will find that the American Farmland Trust was created by the Conservation Foundation, which is the granddaddy of all conservation groups

In 1948, the Conservation Foundation was created, with its first director being Henry Fairfield Osborne, the nephew of the Fairfield Osborne who had hosted, along with Averell Harriman's family, the infamous 1932 International Eugenics Conference in New York The Osbornes did loyal work for the Harrimans and the Rockefellers in their master race and population control projects The Osborne Center for Economic Development, in cooperation with the World Wildlife Fund, gives the Conservation Foundation a strong voice in directing policy debates aimed at shutting down agriculture through environmental disguises

The Conservation Foundation also set up other organizations such as the Environmental Defense Fund and was the only nongovernmental incorporator of Earth Day in 1970 It mediates negotiated rule-making efforts for the Environmental Protection Agency (EPA)

In 1985, one year after the Conservation Coalition was pulled together by the AFT, the Conservation Foundation merged with the U S World Wildlife Fund, which has a membership of more than 600,000 and an annual "big money" budget of more than $29 million The U S WWF is part of the International World Wildlife Fund, which includes organizations in 26 countries on five continents Since its founding in 1961, WWF has worked in more than 100 countries to implement over 1,400 "sustainable" projects

Now, stand back from the entire network, and you see how interwoven it is with boards of directors and key operatives

At the center of this evil spiderweb are the "families" One of the direct links to the "Old Aristocratic Families" can be found through the president of the International World Wildlife Fund, Prince Philip, who is the Duke of Edinburgh and husband of the Queen of England

In the United States, the chairman of the U S WWF Conservation Foundation, Russell E Train, is a descendent of business partners of the Morgan banking empire and currently a member of the Trilateral Commission and U S Council on Foreign Relations WWF secretary Anne P Sidamon-Eristoff, and her husband Constantine are related to Russian nobility, and from 1962-82 Constantine was vice president of the Tolstoy Foundation, which represents the aristocratic families of Russia in the United States Another WWF director, John Bross, was the advisor to CIA chief William Casey from 1981-86, and is one of the top CIA agents in the U S intelligence community WWF board member William D Ruckelshaus is former head of the EPA Board member Nelson S Talbot is a member of the U S Association of the Club of Rome, the international neo-Malthusian organization that began the limits to growth hoax back in the early 1970s Richard D Lamm, former governor of Colorado, is a board member, and has publicly made the statement that the elderly should "die and get out of the way" John T Dorance Jr, a director on the board of Morgan Guaranty Trust Co of New York and J P Morgan & Co, and also is a trustee of Penn Mutual Life Insurance Co, serves on the board of the WWF

William K Reilly, the former head of the Conservation Foundation, the World Wildlife Fund, and a board member of the American Farmland Trust, is the current head of the Environmental Protection Agency

Why conservation policy would be used to shut down American food production and destroy capital-intensive family farming becomes very understandable when one looks at the board of directors of the American Farmland Trust

On that board you find Dwayne O Andreas, chief executive of Archer, Daniels Midland grain company, the largest soybean processor in the U S A, a member of the Trilateral Commission, and co-chairman of the U S-U S S R Trade and Economic Council, Mrs David Rockefeller, whose husband is chairman of the Trilateral Commission and kingpin of the vast Rockefeller banking empire, and Robert B Anderson, whose father, Robert O Anderson, is chairman of Atlantic Richfield Co (ARCO) the largest petroleum company in the world, a member of the Trilateral Commission, and chairman of the Aspen Institute, which wants to rewrite the U S Constitution, and is one of the largest owners of farmland in the world These three people alone provide direct links to the depopulation lobby and grain monopoly interests of the Trilateral Commission

Other board members of AFT tied to wealthy banking interests include Mason Walsh Jr, head of R K Mellon & Sons, Inc, banking interests, Frederic Winthrop Jr, head of the Trustees of Reservations, the oldest land trust in the U S A, and former agricultural commissioner of Massachusetts

The AFT is the driving force in promoting programs called Purchase of Development Rights (PDR) that pay farmers for deed restrictions known as conservation easements, removing land forever from nonagricultural development The AFT is providing leadership to state governments and local grass roots organizations to establish PDR programs throughout the farm communities, thus placing binding restictions on the land for all future generations

The groups that are pushing the environmentalist "green" line, are being funded through grants from Eastern Establishment foundations The Rockefeller Brothers Fund, the Andrew W Mellon Foundation, and many other foundations funded the 1989 *Alternative Agriculture* book, the bible of the movement These foundations are connected to the same international political and banking circles responsible for the world economic collapse and depopulation through starvation This is the truth behind the deception that is funding the hype of "sustainable agriculture"

FOOD FOR PEACE

Consumers Beware: America's Farmers No Longer Feed the Nation

by Robert L. Baker

Shortages of food are already evident in our major cities and rural areas, where hundreds of thousands of families and individuals, many of the homeless, rely on soup kitchens and food banks to survive. These food banks do not have the means to meet the growing need; government food surpluses are depleted or non-existent. Fifty million Americans exist at or below the federally established poverty level, and regularly go hungry.

Secretary of Agriculture Clayton Yeutter boasts that the average American spends only 10.5% of disposable income on food. But, when this statistic is broken down into income groups, it is clear that 80% of U.S. families spend between 30% to 50% of their income for food.

National farm policy is national food policy. Despite the fact that we depend on our farmers for our daily bread, the net effect of our national farm policy has been to bankrupt them. The USDA has maintained prices to the farmer below his costs of production for decades, forcing farmers to asset strip their farms or go into debt to maintain a capacity to produce food. Farm service supply companies and machinery dealers have been hit the same way.

American agriculture is being restructured. Our capacity to produce food is being cut, and centralized in the hands of powerful, monopolistic agribusiness concerns such as Iowa Beef Processors, Cargill, and ConAgra. While hunger and food shortages develop at home and millions die of famine abroad, USDA farm policy is paying farmers to take land out of production and not produce food. You may ask, why?

This news service and the Food for Peace organization have documented that the international power elite associated with the liberal financial circles of the Eastern Establishment of the United States, are pushing policies of global depopulation through mass genocide. Monopoly control of a shrinking food supply is essential to this depopulation policy, and U.S. farm policy is forcing America's farming industry to accomodate this goal.

The meat protein industry is the sector of U.S. farm industry that is becoming cartelized at the fastest rate in terms of processing. In terms of production, the American beef, pork, and lamb industries have shrunk dramatically during the 1980s.

The total number of cattle and calves has fallen 25% since 1975 to 100 million head, the lowest number since 1961. During the same period, beef cow numbers dropped 24 million head (42%) to only 33 million by 1988. **(See Figure 1a.)**

Since 1980, the breeding herd for swine fell 29% and for sheep, 17%.

Since 1980, America has lost 266,000 cattle raisers (16%), 319,000 pork producers (49%), and 12,000 sheep producers (10%). According to a February 1989 USDA report, when all economic costs are accounted for, during the years 1985, 1986, and 1987, U.S. cow-calf producers lost an average of $197, $155, and $126, respectively, per cow.

America's Collapsing
Meat Protein Production

Figure 1a **Decline in Breeding Stock and Producers, 1979-88**

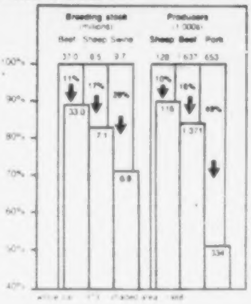
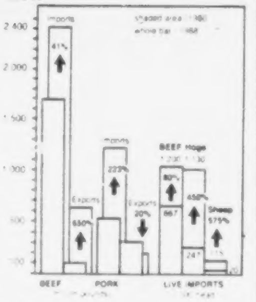


Figure 1b **Growth in U.S. Meat Imports, 1980-88**



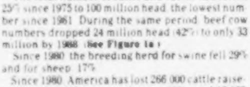
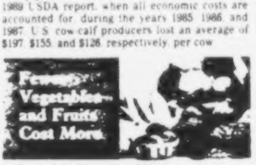

Fewer Vegetables and Fruits Cost More.

Figure 2 **Net Imports of Fruits and Vegetables on the Rise, 1980-88**



Another USDA report of January 1988 indicates that the combined farm income and cash flow statements for domestic hog, beef, and sheep farms were a catastrophe over the last two years. A full 56% of U.S. livestock farms had a negative cash income (all cash income minus all cash expenses) as of January 1988. Even when nonfarm income was added into the figure for livestock farms, 42% of them still had a negative income.

At the same time that producers were going broke because of low prices, the U.S.A. became the largest importer of meat in the world. Meat imports have depressed U.S. prices even further.

From 1980 to 1988, beef and pork imports increased 41% and 223% respectively. Government officials have boasted of their ability to increase meat exports, to help move the farmers' product, and that the largest portion of farm exports for 1988 were animal products, at 37%. What the USDA doesn't like to tell the public is that in 1988 beef imports were 370% higher than beef exports and pork imports were 600% higher than pork exports.

Live animal imports have also increased. Compared to 1980, live cattle imports have increased 80%, live hog imports by 450%, and feeder lamb imports by 575%. **(See Figure 1b.)**

Every year, Americans consume billions of pounds of fruit and vegetables imported from starving nations of Latin America, primarily Brazil and Mexico, which, like their neighbors, are being forced to sell the food their own populations need, to raise cash in order to meet the usurious debt payment demands of international bankers. As in the case of meat, these imports are often purchased at low prices which help to keep U.S. prices depressed.

Since 1980, according to USDA trade figures, net imports of fresh fruit have increased over 100% and imports of fresh vegetables have increased 281%. Over the course of the decade, prices to the consumer for these products have gone up 62%. (See Figure 2.)

Even though the U.S.A. is a large exporter of apples, many domestic producers are being driven out of business by prices below the cost of production. In Washington, the largest apple-producing state in the country, up to 15% of growers are facing bankruptcy; they receive $8 per box for apples that cost $9 dollars per box to produce. The USDA claims the problem in the industry is "over-production" when in fact it is underconsumption: Americans consume only half as many apples per capita as Europeans.

Fruit and vegetable producers are under assault by an environmentalist campaign to ban most production-enhancing farm chemicals. A good example of this is the 1989 Alar scare. According to a November 1989 report by the National Agricultural Chemicals Association, elimination of chemical fungicides would "reduce the annual supply of domestically produced fruits, vegetables, and peanuts by about 34 percent." The cost of peanut butter, now an inexpensive source of vegetable protein, would go up 68%.

Milk powder is one of the most easily transported protein sources and has been an essential part of U.S. food aid to hungry nations for decades. But in the mid-1980s, the U.S. stopped contributing milk powder to the U.N. World Food Program. Millions of people in Third World nations are now getting no milk powder and have no milk at all for their children.

Since 1980, dairy herd numbers have fallen 700,000 head, while an additional 1.5 million dairy cattle were slaughtered during USDA's Dairy Herd Termination Program in the mid-1980s. The number of dairy producers has been reduced by 29% or 89,000, since 1980. (See **Figure 3a.**)

The effects of the termination program showed up dramatically in the last half of the decade. Government fluid milk and non-fat dry milk powder stocks were reduced to zero and government supplies of cheese fell 68%.

Millions of children can no longer rely on government-donated cheese for their school lunch programs. The USDA was forced to postpone milk powder exports to Mexico in December and had to repurchase 17 million pounds of dry milk powder exports from West Germany, to stave off chaos in American markets resulting from a "surprise" milk shortage. (See **Figure 3b.**)

Many dairy farmers who are still in business may not be for very long. According to the October 1989 USDA *Dairy Situation and Outlook Report*, the number of dairy farms with negative family income rose from 37% in 1987 to 41% in 1988. This includes all dairy income earned by farmers and even the money earned from off-farm employment of the farmer or his family.

Although the United States remains the world's largest producer and exporter of grain, **U.S. grain production has been drastically reduced by taking a total of almost 400 million acres of cropland out of production between 1981 and 1989 (total acreage unused in this eight year period). (See Figure 4.) Implemented to reduce so-called "surpluses," land set-aside programs have destroyed a major part of the agri-industry infrastructure by eliminating the need for hundreds of thousands of local farm stores and services businesses.**

The net effect of reduced commodity support prices and higher dollar exchange rates during the mid-1980s forced commodity prices lower and grain inventories higher. Now, U.S. wheat stocks are 75% lower than in 1985-86, and coarse grain stocks have fallen 52% compared to 1988. During 1988, per capita soybean stocks fell to one of the lowest levels in history. (See Figure 5.) The U.S. is the world's largest importer of oats and is currently importing 15% of the durum wheat it consumes.

The number of U.S. farms has fallen 65% since 1950 and 333,000 farmers have gone out of business since 1980. For the first time since President Lincoln's great land settlement of the Midwest, the total acres of American farmland has dropped below 1 billion acres to 988 million.

America's
Dairy Protein
Butter

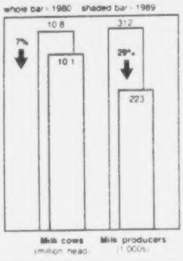


Figure 3a **Decline in U.S. Dairy Herd and Dairy Producers (1980-89)**

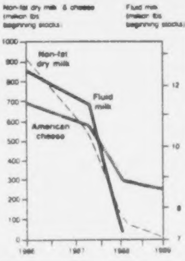
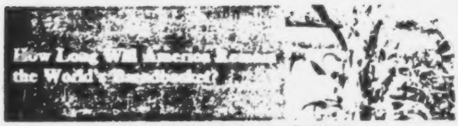


Figure 3b **U.S. Fluid Milk, Non-fat Dry Milk, and Cheese Stocks, 1986-89**


How Long Will America
the World's

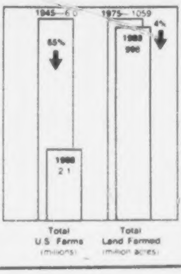


Figure 4 **Decline of U.S. Land Farmed and Farmers**

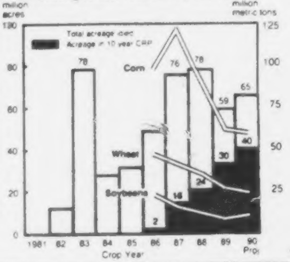


Figure 5 **Acreage Idled Under Federal Programs (1981-90), and Declining Grain Production (1986-90)**

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—WEATHERIZATION

WITNESS

GWENDOLYN C. PELLETIER, DIRECTOR, OFFICE OF ENERGY CONSERVATION, MASSACHUSETTS EXECUTIVE OFFICE OF COMMUNITIES AND DEVELOPMENT

Mr. DICKS. The Massachusetts Office of Energy Conservation, Gwen Pelletier.

Ms. PELLETIER. Good morning.

Mr. DICKS. Good morning. How are you?

Ms. PELLETIER. Fine. Thank you.

Mr. DICKS. Good. Well, do you want to tell us about weatherization?

Ms. PELLETIER. I'd certainly like an opportunity to tell you about weatherization.

Mr. DICKS. Fine. We'll put your statement in the record, and you have five minutes.

Ms. PELLETIER. I'm Gwendolyn C. Pelletier, director of the Office of Energy Conservation for the Commonwealth of Massachusetts. My primary responsibilities are to oversee the operation of the weatherization systems program and related energy conservation programs.

I am here to request continued funding for the weatherization systems program from the Department of Energy and to ask for $350 million annually for the next three years.

In his statement in the budget overview, Admiral Watkins states that there are adequate oil overcharge funds to continue to operate this program. I'd like to state that that is simply not true. The oil overcharge funds allocated to this program have been used primarily, and there are still some coming, but most of the oil overcharge funds have already been used.

In some states, there were no oil overcharge funds allocated to the weatherization systems program at all, so to say that there are funds available for that program isn't true. For example, in Massachusetts, we received $70 million of the Exxon oil overcharge funds, and that is by far the largest settlement in the oil overcharge fund. $52 million of that was allocated to the weatherization systems program.

For fiscal year 1990, which we are in now, I have allocated the last $600,000 of that program of those funds for the weatherization systems program. We spent the $52 million plus $6.5 million in the interest of low-income people for the weatherization systems program. We don't have adequate oil overcharge funds left to serve this program.

In the proposed budget, President Bush and Admiral Watkins have proposed $15 million and some incentive funds for this program to reward those states which are able to leverage other funds. In a time where we're trying to promote public/private partnerships, I would say that $15 million is certainly not even a token for promoting public/private partnerships. For a budget that is, this year, $161 million to say $15 is adequate to promote public/private partnerships is inadequate.

This program serves two purposes primarily. One is to save energy. This is a technically competent program which has grown over the 11 years that it has been in existence. It does save energy. There are studies which indicate that it saves from 15 to 30 percent in homes of the clients where measures are performed.

Mr. **Dicks**. Does the State of Massachusetts put up some of its own money for this program?

Ms. **Pelletier**. Yes. We have historically put up $4 million a year for the program.

Mr. **Dicks**. How much do you get out of this program currently from the Federal Government?

Ms. **Pelletier**. $5 million out of DOE.

Mr. **Dicks**. So it is about a $9 million program annually?

Ms. **Pelletier**. Well, and with the oil overcharge funds, there have been in recent years, some years when it was $35 million, but we are looking at a program next year of down to $10 to $15 million based on the funding that we know is available.

The second purpose of the program is to meet the needs of poor people and to make their lives more comfortable. I'd like to give you some examples of things that clients who have received the services have written to me in letters.

There is the single working mother who lost her job and wrote to us and said, "You made my life more comfortable because you were able to weatherize my house last year, and I want you to know that I have a job now, so I'm not going to need fuel assistance anymore."

There is a handicapped 35-year old male who wrote and said, "I thought I'd never need public help. I was hit by a drunk driver and am handicapped as a result of that. Your program made my life and my family's life much more comfortable."

There is a 77-year old Esther who wrote to say that she had osteoarthritis and she had had services from the program and no longer do the curtains blow in her windows in her house. At least she is going to be warm inside her house now because we have weatherized her house, and she is going to be able to stay in her house longer because we were able to provide the services for her.

There is Veronica, who came to my apartment and found her way into Boston, after getting somebody to deliver her to a commuter rail, and took the commuter rail in, and found her way up to my office, and came in and said, "I just want to thank you for what you did for us."

Mr. **Dicks**. Good. You've got about 30 seconds here.

Ms. **Pelletier**. I want to close by quoting one of my agencies at my public hearing. This is one of the program directors who said, "Thousands of us who are in the energy conservation trenches see 1,000 points of life emanating from every low-income home that has not yet received weatherization services." We wonder how you can possibly consider eliminating this program.

Mr. **Dicks**. Well, we will protect it as best we can. Thank you.

Ms. **Pelletier**. Thank you.

Mr. **Dicks**. Keep up the good work.

Ms. **Pelletier**. Thank you very much.

Mr. DICKS. We'll tell Mr. Atkins that you were here. He'll be here later.

[The prepared statement of Gwen Pelletier follows:]

TESTIMONY

OF

GWENDOLYN C. PELLETIER

DIRECTOR

OFFICE OF ENERGY CONSERVATION

MASSACHUSETTS EXECUTIVE OFFICE OF COMMUNITIES AND DEVELOPMENT

ON THE

FY 91 BUDGET PROPOSAL

FOR THE DEPARTMENT OF ENERGY

LOW INCOME WEATHERIZATION ASSISTANCE PROGRAM

BEFORE THE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

HOUSE APPROPRIATIONS COMMITTEE

U.S. HOUSE OF REPRESENTATIVES

MARCH 8, 1990

I would like to thank Representative Atkins and the other members of the Subcommittee on Interior and Related Agencies of the House Appropriations Committee for the opportunity to appear before you to present the position of the Commonwealth of Massachusetts relative to the FY'91 proposed budget level for the Department of Energy Weatherization Assistance Program. My name is Gwendolyn C. Pelletier. I am Director of the Office of Energy Conservation within the Massachusetts Executive Office of Communities and Development. My responsibility is to manage the operation of the Low Income Weatherization Assistance Program and related energy conservation programs for low income households.

The budget proposed by President Bush for FY'91 includes only $15 million for the Low Income Weatherization Assistance Program. That is a $146.7 million reduction from the FY'90 level of $161.7 million. For several years President Reagan attempted to eliminate the Weatherization Assistance Program. However, in recognition of the value of the program in saving energy and improving the quality of life for poor people, Congress has historically insured that the program continues to be funded.

I urge you once again to recognize that this program makes a significant contribution in many ways. Not only does it save energy and help poor people, it also contributes to the economy, helps slow down global warming, and stretches the funds provided by the federal and state governments for fuel assistance.

How does this one program, which for FY'90 at $161.7 million is not quite 1% of the total Department of Energy budget, do all these things?

Scientific studies have shown that energy saved from installation of weatherization measures ranges from 15% to 30%. Some analyses have indicated an average savings per household of 23%. For 1988, one report estimates that weatherization of low income households from all funding sources saves 10.6 trillion BTUs.

Global warming and acid rain and their effects on our environment are issues of major concern on the world, national, and state levels. Weatherization reduces the pollutants contributing to acid rain and the CO_2 buildup which contributes to global warming; both the pollutants and CO_2 are products of the combustion process needed to generate electricity.

Weatherization contributes to the local, state, and national economy. The most significant impact is seen on the local level. In Massachusetts, 28 agencies operate the Weatherization Assistance Program. In each of the communities, small businesses perform the actual work. Each agency has a minimum of three contractors, with a minimum of two employees each. Even at a minimum level that is 168 jobs in local businesses, not including another 150 plus people employed at the agencies which operate the programs. However, the impact is far greater than that because materials for the program are purchased from local building supply companies, manufacturers, and distributors. In Massachusetts, there are 10 major distributors and manufacturers of supplies.

Because we coordinate applications with the Fuel Assistance Program, the Weatherization Program is able to identify those clients who receive federal and state fuel assistance funds. High energy users can be identified and given high priority for service. In addition, the limited funds available for fuel assistance can be stretched to serve more families through efficient use of fuel due to weatherization activity. A second coordination level with the fuel assistance program shows Massachusetts' strong commitment to conservation. Federal regulations allow a state to set aside 15% of the fuel assistance funds for conservation programs. For the past five years, we have done so, developing a separate heating system repair program aimed at improving the efficiency of heating systems for fuel assistance and weatherization clients. Our clients have "one stop shopping;" we address all the situations in a client's home which can conserve energy as a result of our coordinated efforts. And we support the investment by including client education as a required component of the program.

Last, but certainly not least of the contributions of the program, is the affect it has on the lives of the poor people it serves. Listen to these comments from letters I have received from recipients of the services.

1. "I am 84. My home is much warmer--doors close tightly--no movement of curtains now, no breezes. The workers finished their duties and left my home in perfect order....I have a severe case of osteo arthritis and am very disabled. I require a lot of warmth and I notice the difference. I feel so much better and save on my fuel besides....Forever and ever grateful. Thank God for this service to help us elderlies. We appreciate and thank you."

2. From a property owner whose low income tenants received services and who contributed funds to the project, "I would be remiss not to send a letter thanking you for the excellent energy conservation projects you performed for us....The quality of the work was more than satisfactory, and the supervision...was also of superior quality. We have already had demonstrated savings due to the effectiveness of the work you performed."

3. Esther is 77 years old and physically disabled. She lives alone in a mobile home. In the past she had been reluctant to accept weatherization services due to distrust of strangers. A neighbor who had her home weatherized convinced Esther to allow the agency to replace her windows. "Many, many thanks for the recent weatherproofing done on my mobile home....I now have five new windows that are certainly a decided improvement over the originals. They not only look great, but they fit snugly and I no longer see the curtains blowing when there is wind....They weatherproofed other windows, doors, electrical outlets. Their work was excellent....I can look forward to a warmer winter, at least inside my home....I am eternally grateful for the assistance given me which enables me to stay in my home. Believe me, it means a great deal to me to remain here as long as possible."

4. From a parent, "I got laid off from my job on February 3rd. It was a very frightening experience for my family and me seeing as I am a single parent. Your help in winterizing our home....was a true blessing and I must say your men did a terrific job for us. Now this year I won't have to worry about my pipes freezing under the house....I want you to know

I just got a job a few weeks back. Thank you again and I will always be grateful to you, your staff and the Community Action program."

5. And another, "I am writing to you to thank the MOC (a CAP agency in Fitchburg) organization for helping to make my home much warmer this winter. I live here with my two daughters and there is a big difference in the heating. The workers were great. They worked without a break. There was a minimum of mess and such a difference. I can't say enough of good things about the people and work."

6. And one more, "I am a 35 year old male, handicapped, married with two children....They did a very professional job. Our house was like a barn it was so cold. Our heat was escaping. They blew in insulation, repaired windows, weatherstripped all cold doors and windows. I just can't say how warm we are now! They cleaned up so well you would not know they were here. They are a top notch outfit....I've never had a need for assistance before. I was struck by a drunk driver two years ago, and as a result lost my job of ten years at AT&T. We needed your help. You were there for us".

It is my understanding that the FY'91 budget proposed by President Bush for low income weatherization is only a $15 million incentive fund which is to be used to reward states which can successfully leverage other funds for the program. Several things about that proposal concern me. First, states like Massachusetts, which can leverage other funds will get increased funds while those states, which for many reasons cannot, will be punished and receive no funds. Second, it is the poor people of those states who will be denied, through no fault of their own, a service which could improve the quality of their lives. Third, a program which has proven that it can save energy will receive virtually no support from the federal government, although saving energy is a matter of national concern. Fourth, there is a misconception that oil overcharge dollars are available in abundant amounts for the operation of this program.

Let me address first the issue of oil overcharge dollars. Settlements made with oil companies which returned millions of dollars to the federal and state governments were for the purpose of "repaying" consumers for overcharges by the oil companies. It was never intended that those "repayments" were to replace federal appropriations. However, in his "Fiscal Year 1991 Budget Overview," for the Department of Energy, Secretary of Energy Admiral James D. Watkins states relative to conservation grants, "Adequate resources for these programs remain from oil overcharge funds distributed to the states." He and President Bush overlook two significant points. First, states can choose to use oil overcharge dollars for several different purposes, not just energy conservation. According to a survey by the National Consumer Law Center, five states have used no oil overcharge funds for low income energy conservation programs. Second, the significant amounts of oil overcharge dollars have already been distributed and used. For example, Massachusetts received $70 million in EXXON funds, by far the largest settlement. Governor Michael Dukakis allocated $52 million of those funds to the Low Income Weatherization Assistance Program. By the end of the FY'90 program year, those $52 million plus approximately $6.5 million in interest will have been used to serve more than 35,000 households.

Relative to the incentive fund, I find the idea a bit incongruent during a time when efforts are being made to encourage public/private partnerships. Massachusetts will be in a strong position to be able to document leveraging funds for the low income Weatherization Assistance Program because privately owned utilities are now looking at conservation as a crucial piece of management of the resources. Several major utilities in Massachusetts are already working with my office to insure that services provided to their customers coordinate with programs for the low income clients we serve. To provide minimal funds for incentive purposes does not indicate a serious federal commitment to public/private partnerships, but instead makes a statement that private industry should do it all. Massachusetts received approximately 3% of the FY'90 Department of Energy budget for the Low Income Weatherization Assistance Program, or $5.2 of $161.4 million. Of the proposed $15 million for FY'91, based on the same percentage, Massachusetts would receive approximately $450,000. That is certainly not a serious commitment for a partnership to address energy conservation, an issue of significant importance on the national level.

Since 1979 when the Low Income Weatherization Assistance Program was initiated, it has grown to be a technically competent program which contributes significantly to energy conservation. Witness major utilities in Massachusetts approaching our office for help in delivering their programs. In Massachusetts, over 100,000 homes have been weatherized. Available poverty statistics indicate there are close to 225,000 households at 150% of poverty in Massachusetts. Since we have weatherized 100,000 already, that leaves approximately 125,000 to be weatherized. For FY'90, Massachusetts has a budget of approximately $15 million from all funding sources, including the oil overcharge funds. Department of Energy funds are only $5.2 million of that total. We project being able to weatherize 8,114 homes with the $15 million. If we were able to maintain that level of funding on an annual basis, it would take approximately seventeen years to weatherize all the estimated eligible households.

Wouldn't it be a wonderful day in the near future to be able to say that we have done the job!? That the homes of low income people had been made energy efficient. That the program had served its purpose. That funds are no longer needed. We could do it if we combine funds available through utility programs and a continued commitment from the Department of Energy. Instead, the administration is turning its back on this energy conservation program and its evident need.

The Commonwealth of Massachusetts recommends that the Department of Energy Low Income Weatherization Assistance Program be funded at a level sufficient to address seriously the energy conservation needs of poor people. (They cannot do it themselves because they are worried about keeping roofs over their heads and feeding themselves.)

We recommend not just a token incentive fund and not just level funding, but a commitment at an absolute minimum of $200 million. However, we strongly urge a stable funding level over the next three years of $350 million annually so that we can seriously address the energy conservation needs of poor people and of our nation.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—WEATHERIZATION

WITNESS

DENNIS DARLING, DIRECTOR, BUREAU OF HUMAN RESOURCES, PENNSYLVANIA DEPARTMENT OF COMMUNITY AFFAIRS

Mr. DICKS. Dennis Darling from the Pennsylvania Department of Community Affairs on Weatherization. Mr. Darling?

Mr. DARLING. Mr. Chairman, I am Dennis Darling. I am the director of the Bureau of Human Resources for the Pennsylvania Department of Community Affairs.

Like Gwen Pelletier, one of my primary responsibilities is the administration of the weatherization systems program. I have had the opportunity of working in State Government since 1970 and have had a lot of experience with many, many different programs, but I have encountered few that have as many benefits per dollar invested as you'll find in the weatherization program.

Of course its primary mission is bringing the reduction of energy costs and the adverse impacts on low-income persons, but we also have aspects of the program that are also worth considering that are positive benefits. These include some employment and work experience that accrues to the people who work in the program, namely the work crews. We have a training center in Pennsylvania located in the Pennsylvania College of Technology in Williamsport that——

Mr. DICKS. Have you had any problems with organized labor on this? Have you been able to work this out with the local union?

Mr. DARLING. At various times over the course of this program, over the history of it, we have worked with unions. I can recall a time in the early 1980s when we had very high unemployment rates in some of the construction trades, and we were able to work with the Carpenters and Joiners Union to employ some of the unemployed carpenters and joiners back then.

Mr. DICKS. But it hasn't been a problem?

Mr. DARLING. It has not been a problem at all, no.

Mr. DICKS. Okay.

Mr. DARLING. All of our crews do go through a competency certification course at the College of Technology. I think the impact on preservation of low-cost housing, which just allows people to stay in houses that would not otherwise be able to do so, is very important.

Recently we began working on a process where we would use additional recyclable materials in the program. We have been working out some arrangements with cellulose insulation manufacturers where, when they deliver a load of cellulose insulation to one of our local agencies, they will stop at the recycling center, pick up a load of old used newspaper and take it back to be turned into cellulose insulation.

Of course, we have all been reading a lot about global warming and the greenhouse effect. Certainly, the reduction of energy among the least energy efficient homes that we have is an important aspect of the program.

In Pennsylvania, the average low-income household spends about 18 percent of its income on heating energy. For the latest year where we have numbers, about 1.1 million households in Pennsylvania on the average are in arrears on their utility bills. This amounts to about $240 million in an average month. Incidentally, these are for the year 1988, and they represent an 11 percent increase over the prior year.

As is stated by my colleague from Massachusetts, the weatherization program is effective in dealing with high energy use. In Pennsylvania, where our averages run around 12 to 15 percent in the average household, it is very common to see 20 and 30 percent savings. Over the past two years, we have weatherized over 37,000 households.

Also during the last two years, we have instituted a number of——

Mr. Dicks. How many do you have to go?

Mr. Darling. We've probably got about another 25-year supply.

Mr. Dicks. About another 25 years.

Mr. Darling. At current rates. We've got 13 years in on the program. We've done over 250,000 homes, but there is probably about 800,000 left in Pennsylvania. We've done 250,000.

Mr. Dicks. So you're not going out of business?

Mr. Darling. Not anytime soon.

Mr. Dicks. What about the State? What do you all put in?

Mr. Darling. Presently there is no actual State money in the program. They are currently involved in setting up a tax credit program that will hopefully generate some private sector contributions. They will give about $400,000 worth of tax credits.

Mr. Dicks. Why has the State not seen—it is such a good program, why would the State not put up some money to match what the Federal Government is doing?

Mr. Darling. Well, with the situation we're facing this coming year, the State budget is in very bad shape. It has a very tight budget this coming year.

Let me just launch into a little of some of what we are facing in Pennsylvania. Last year, our funding level was about $31.9 million. We weatherized 17,900 homes with that. This year we have $29 million. We expect to weatherize about 16,000 homes. For the coming year, which for us starts July 1, we will be down to $21.7 million, and we will weatherize 4,100 fewer homes than we did last year.

We are current proceeding with some plans to try to manage an anticipated 27 percent cut which will be exclusively for the exhaustion of the petroleum violation escrow or oil overcharge funds.

Mr. Dicks. Okay. Well, we'll put your whole statement in the record. We appreciate your being here. We'll tell Mr. Murtha, and Mr. McDade, that you made a very excellent statement.

Mr. Darling. Please do.

Mr. Dicks. Thank you.

Mr. Darling. Thank you.

Mr. Dicks. All right.

[The prepared statement of Dennis Darling follows:]

TESTIMONY REGARDING THE WEATHERIZATION ASSISTANCE PROGRAM
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
MARCH 8, 1990

MR. CHAIRMAN, COMMITTEE MEMBERS, LADIES AND GENTLEMEN, MY NAME IS DENNIS DARLING AND I AM THE DIRECTOR OF THE BUREAU OF HUMAN RESOURCES, PENNSYLVANIA DEPARTMENT OF COMMUNITY AFFAIRS, THE STATE AGENCY RESPONSIBLE FOR ADMINISTERING THE WEATHERIZATION ASSISTANCE PROGRAM IN PENNSYLVANIA.

I KNOW OF FEW PROGRAMS THAT PRODUCE AS MANY BENEFITS FOR THE DOLLAR INVESTED AS THE WEATHERIZATION ASSISTANCE PROGRAM. THE REDUCTION OF ENERGY RELATED HOUSING COSTS FOR LOW-INCOME, ELDERLY AND HANDICAPPED, REDUCTION OF HEATING SYSTEM SAFETY PROBLEMS IN LOW-INCOME HOMES, THE PROVISION OF EMPLOYMENT, WORK EXPERIENCE AND TRAINING OPPORTUNITIES FOR THE UNEMPLOYED, INCREASING THE MARKET FOR RECYCLED NEWSPRINT AND REDUCTION OF CARBON DIOXIDE EMISSIONS FROM THE BURNING OF FOSSIL FUELS THAT HAVE BEEN CONNECTED TO GLOBAL WARMING ARE ALL POSITIVE OUTCOMES OF THE WEATHERIZATION PROGRAM.

IN PENNSYLVANIA, POOR PERSONS SPEND UP TO 18% OF THEIR INCOME ON HOME HEATING COSTS. DURING 1988, THE MOST RECENT YEAR FOR WHICH STATISTICS ARE AVAILABLE, THE PENNSYLVANIA PUBLIC UTILITY COMMISSION ESTIMATES THAT A MONTHLY AVERAGE OF 1,123,483 PERSONS WERE IN ARREARAGE ON THEIR UTILITY BILLS. THESE ARREARAGES AMOUNTED TO A MONTHLY AVERAGE OF $242.2 MILLION AN 11% INCREASE OVER THE PRECEDING YEAR. THIS MOUNTAIN OF DEBT DOES NOT TAKE INTO ACCOUNT THE PHILADELPHIA GAS WORKS, A UTILITY NOT REGULATED BY THE PUBLIC UTILITY COMMISSION, WHICH SERVICES THE LARGEST

CONCENTRATION OF LOW-INCOME PERSONS IN THE STATE, NOR THOSE LOW-INCOME PERSONS WHO HEAT WITH OIL OR COAL. CLEARLY THE ENERGY CRISIS THAT FOR MOST OF US IS ONLY AN UNPLEASANT MEMORY IS A CONTINUING AND GROWING PROBLEM FOR THE LESS FORTUNATE IN OUR SOCIETY.

WEATHERIZATION CAN AND DOES ACCOMPLISH A GOOD DEAL FOR THOSE FACED WITH HEATING THEIR HOMES ON VERY LIMITED INCOMES. IN PENNSYLVANIA, WE HAVE DOCUMENTED POST WEATHERIZATION ENERGY USE REDUCTION AVERAGING 12 - 15% WITH ENERGY SAVINGS IN THE 20 - 30% RANGE BEING COMMON. IN THE COURSE OF WEATHERIZING OVER 37,000 HOMES IN THE PAST TWO YEARS, WE HAVE ALSO BEEN ABLE TO REPAIR OR AT LEAST ALERT THE HOMEOWNER OR TENANT TO POTENTIALLY LIFE THREATENING MALFUNCTIONS IN THEIR HOME HEATING SYSTEMS.

WE HAVE ALSO NOTED THAT MOST LOW-INCOME PERSONS HEAT AT THE MARGINS OF COMFORT, HEALTH AND SAFETY. BY WEATHERIZING HOMES, BY MAKING HEAT MORE AFFORDABLE, WE CONTRIBUTE TO THE GENERAL PHYSICAL AND PSYCHOLOGICAL WELL BEING OF THE LOW-INCOME OCCUPANTS OF THOSE HOMES.

AS YOU CONSIDER THE ISSUE OF FUNDING FOR THE WEATHERIZATION ASSISTANCE PROGRAM, I RECOMMEND THAT YOU CONSIDER THE INDIRECT BENEFITS OF WEATHERIZATION IN ADDITION TO THE DIRECT ENERGY USE BENEFITS. SPECIFICALLY, I REFER TO SKILL DEVELOPMENT BENEFITS TO PERSONS EMPLOYED ON WORK CREWS WHO MUST ATTEND CLASSES AND ACHIEVE A BASIC COMPETENCY CERTIFICATION AT PENNSYLVANIA'S WEATHERIZATION TRAINING CENTER AT THE PENNSYLVANIA COLLEGE OF

TECHNOLOGY AT WILLIAMSPORT, PENNSYLVANIA. OTHER STATES INCLUDING OHIO AND VIRGINIA HAVE SIMILAR TRAINING PROGRAMS ASSOCIATED WITH THEIR WEATHERIZATION ACTIVITIES.

IN PENNSYLVANIA, THE WEATHERIZATION PROGRAM ALSO CONTRIBUTES TO THE STATE'S RECYCLING EFFORT. CELLULOSE INSULATION, MADE FROM RECYCLED NEWSPRINT, IS USED HEAVILY IN THE PROGRAM. PRESENTLY, WE ARE IN THE PROCESS OF SETTING UP A SYSTEM WHEREBY TRUCKS DELIVERING CELLULOSE INSULATION TO LOCAL WEATHERIZATION PROVIDERS WILL STOP AT THE LOCAL RECYCLING CENTER TO PICK UP A LOAD OF NEWSPRINT TO BACKHAUL TO THE INSULATION MANUFACTURER. THIS YEAR WE ESTIMATE THAT THE PENNSYLVANIA WEATHERIZATION PROGRAM WILL USE ABOUT 8,000 TONS OF NEWSPRINT IN THE FORM OF CELLULOSE INSULATION.

WE ARE ALSO EXAMINING HOW OTHER RECYCLED MATERIALS SUCH AS PLASTIC AND WOOD CHIPS, WHEN RECYCLED INTO BUILDING MATERIALS CAN ALSO BE USED FOR WEATHERIZING HOMES.

LASTLY, I THINK YOU SHOULD CONSIDER THE FACT THAT ABOUT 25% OF THE WORLDWIDE EMISSIONS OF CARBON DIOXIDE, LINKED TO GLOBAL WARMING ORIGINATE IN NORTH AMERICA. ABOUT 16% OF THAT AMOUNT IS RELATED TO HOME HEATING AND BUSINESSES.

THE WEATHERIZATION OF THE LEAST ENERGY EFFICIENT HOMES -- USUSALLY THOSE OCCUPIED BY POOR PEOPLE -- TO REDUCE ENERGY USE AND CARBON DIOXIDE EMISSIONS WOULD THEN SEEM TO BENEFIT US ALL -- POTENTIALLY IN A VERY SIGNIFICANT WAY.

HAVING DISCUSSED SOME OF THE BENEFITS ACCRUING FROM WEATHERIZATION, I'D LIKE TO SPEND SOME TIME TALKING ABOUT SOME STEPS WE HAVE TAKEN IN PENNSYLVANIA TO INCREASE THE COST EFFECTIVENESS

OF WEATHERIZATION. DURING THE LAST TWO YEARS WE HAVE NEARLY TRIPLED OUR ON-SITE QUALITY CONTROL INSPECTIONS. WE HAVE INTRODUCED SOME NEW COMPUTER TECHNOLOGY IN THE FORM OF BLOWER DOORS THAT ALLOW US TO MORE EFFECTIVELY ADDRESS AIR INFILTRATION PROBLEMS. FURNACE EFFICIENCY MODIFICATIONS, CLIENT ENERGY EDUCATION AND A JOB ESTIMATION PROCEDURE DIRECTLY TIED TO THE COST/BENEFIT HAVE BEEN INTRODUCED INTO THE PROGRAM. WE EXPECT THAT THESE IMPROVEMENTS WILL BOOST AVERAGE POST WEATHERIZATION ENERGY SAVINGS TO THE 20 - 30% RANGE.

DESPITE THESE VERY POSITIVE DEVELOPMENTS IN THE PROGRAM, WE ARE FACED WITH A VERY SERIOUS FUNDING SHORTFALL. LAST YEAR -- STATE FISCAL YEAR 1988-89 OUR WEATHERIZATION FUNDING IN PENNSYLVANIA STOOD AT $31.9 MILLION. WITH THOSE FUNDS WE WERE ABLE TO WEATHERIZE 17,903 HOMES. THIS YEAR (FY 1989-90) OUR FUNDING STANDS AT $29 MILLION AND WE EXPECT TO PRODUCE 15,915 WEATHERIZED HOMES. NEXT YEAR, IF THE STATUS QUO REMAINS, OUR FUNDING WILL DROP TO $21,742,273 AND WE WILL PRODUCE 4,100 FEWER WEATHERIZED HOMES THAN THIS YEAR. PRESENTLY, WE ARE PLANNING FOR FUNDING CUTS OF ABOUT 27%. AT THE LOCAL LEVEL THIS WILL MEAN THAT FUNDING FOR WEATHERIZATION IN PHILADELPHIA WILL FALL FROM $3,994,957 TO $2,893,430, IN SCRANTON IT WILL FALL FROM $1,032,311 TO $750,267, IN JOHNSTOWN FUNDING WILL BE REDUCED FROM $618,267 TO $450,750. SOME RURAL AREAS MAY LOOSE THEIR PROGRAMS VIA CONSOLIDATION INTO NEIGHBORING LARGER PROGRAMS DUE TO THE NEED TO MAINTAIN REASONABLE ECONOMIES OF SCALE. SUCH CONSOLIDATION WILL LIKELY AFFECT WAYNE, PIKE AND MONROE COUNTIES IN NORTHEAST PENNSYLVANIA, CUMBERLAND COUNTY IN THE SOUTH, GREENE COUNTY IN THE

IN THE WEST AND WARREN, FOREST AND VENANGO COUNTIES IN NORTHWEST PENNSYLVANIA. WE ALSO EXPECT THAT THESE CUTS WILL RESULT IN THE LOSS OF 125 JOBS STATEWIDE.

THESE ANTICIPATED FUNDING REDUCTIONS ARE THE DIRECT RESULT OF THE EXHAUSTION OF PETROLEUM VIOLATION ESCROW FUNDS (PVE OR OIL OVERCHARGE) AVAILABLE TO PENNSYLVANIA. BASED UPON INFORMATION OBTAINED BY THE NATIONAL ASSOCIATION FOR STATE COMMUNITY SERVICES PROGRAMS, IT APPEARS THAT SIMILAR OR WORSE SITUATIONS EXIST IN MOST WEATHERIZATION PROGRAMS IN OTHER STATES. IN RECENT YEARS, THE CONGRESS HAS TAKEN THE AVAILABILITY OF PVE OR OIL OVERCHARGE FUNDS INTO CONSIDERATION WHEN APPROPRIATING FUNDS FOR THE WEATHERIZATION ASSISTANCE PROGRAM. THE COMMONWEALTH ASKS THAT IT TAKE THE NON AVAILABILITY OF THOSE FUNDS INTO ACCOUNT WHEN APPROPRIATING FUNDS FOR WEATHERIZATION IN THE COMING FISCAL YEAR BY ALLOCATING $350 MILLION FOR WEATHERIZATION SERVICES.

IN CLOSING, I WOULD LIKE TO THANK THIS COMMITTEE AND CONGRESSMAN MCDADE AND CONGRESSMAN MURTHA FOR THEIR PAST SUPPORT AND FOR THE OPPORTUNITY TO PRESENT THESE COMMENTS TODAY.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/CONSERVATION—STATE AND LOCAL PROGRAMS

WITNESS

MITCH BEAVER, CHAIRMAN, NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Mr. **DICKS**. Mitch Beaver, chairman of the National Association of State Energy Officials.

Mr. **BEAVER**. Good morning.

Mr. **DICKS**. Nice to have you here. We'll put your statement in the record, and you have five minutes to summarize orally.

Mr. **BEAVER**. Thank you. I appreciate the time.

Chairman Dicks, subcommittee members, I am pleased to once again have the opportunity to address this subcommittee as you begin to consider the Department of Energy's fiscal year 1991 funding levels for energy conservation programs.

I am presently serving as chairman of the National Association of State Energy Officials, and I also serve as the director of the Office of Energy Conservation and Alternative Energy of the Illinois Department of Energy and Natural Resources.

We appreciate this subcommittee's support over the past years for these four energy conservation programs known as the SLAP programs. We believe that had you not supported us in the past years there would be many State energy offices which just don't exist today.

We believe that Federal funding of these programs is critical to maintaining a balanced energy policy, especially in these times of rising oil imports and concern over global climate change.

As you know, in fiscal year 1990, these four programs received an increase for the first time in many years of 4/10 of 1 percent. While this was not even sufficient to cover inflation, this increase was a very strong symbolic step, we believe. Today we are here asking for a significant increase in funding levels for these programs.

We believe that the SECP should receive $17.65 million; ICP should receive $35 million; and EES should receive $7.35 million. Overall, this request of $60 million is a start in the right direction as the oil overcharge funds decline. As of the present time these programs receive approximately $39 million.

Despite the Administration's claims, which this subcommittee has wisely never accepted, the oil overcharge refunds are a dwindling resource. As the recent report prepared for the U.S. DOE by the National Consumer Law Center stresses, basically all of the oil overcharge funds received by the states have been allocated with the majority actually obligated. Our recent cold December has exacerbated this problem by increasing the flow of oil overcharge funds away from conservation programs to the necessary, but short-term, program of low-income home energy assistance.

The cuts in both LIHEAP and these four programs have more than offset all the oil overcharge refunds to the states. The Administration is dead wrong in suggesting that all this free money is sitting around without a purpose.

The states, over the years, have developed innovative programs. For example, individual State energy offices have instituted building energy codes of home rating programs. In Washington State, the energy office recently led a successful fight to enact State legislation to increase the energy efficiency of new buildings. Washington State, and its director, Dick Watson, leads the Nation in this area.

Similar efforts have been instituted in California, New York, and elsewhere. In the area of home energy ratings, states such as Arkansas, Alaska, Mississippi, and Vermont have instituted programs, some tied to energy efficient mortgages which help to recognize long-term cost savings associated with energy efficient homes.

Mr. DICKS. You have about a minute left here.

Mr. BEAVER. In conclusion, increased Federal funding of the energy conservation activities carried out through the State and local assistance program is essential to maintaining a secure energy future. History has proven that these programs are very cost effective, returning through energy savings many times the Federal investment. These State energy programs impact every sector of the economy from large businesses to low-income homes. These programs help schools and hospitals to invest more in education and medical care than in wasted energy. These programs make us more competitive internationally and produce direct economic and environmental benefits at home.

Energy efficiency is the least expensive way to address environmental problems associated with energy use, and the State energy programs provide a very inexpensive delivery system.

We urge you to increase funding for these important programs. Thank you very much.

Mr. DICKS. Thank you. We appreciate your testimony.

[The prepared statement of Mitch Beaver follows:]

NASEO National Association of State Energy Officials

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(Illinois)

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TESTIMONY OF

MITCH BEAVER

CHAIRMAN

OF THE

NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

BEFORE THE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

March 8, 1990

Telephone 202-639-8749 · 613 G Street, N.W. 5th Floor, Washington, D.C. 20001

Chairman Yates, Subcommittee Members, I am pleased to once again have the opportunity to appear before you as you begin to consider the Department of Energy's Fiscal Year 1990 funding levels for energy conservation programs.

I am Chairman of the National Association of State Energy Officials (NASEO), an organization comprised of energy officials from 50 states, territories and the District of Columbia. I also serve as Director of the Office of Energy Conservation and Alternative Energy of the Illinois Department of Energy and Natural Resources.

Mr. Chairman, you and your Subcommittee have in the past strongly supported continued federal funding for energy activities carried out through the State and Local Assistance Program (SLAP), including the State Energy Conservation Program (SECP), the Energy Extension Service (EES), the Institutional Conservation Program (ICP) and the Weatherization Assistance Program. Your actions in the past are to applauded, especially in the face of a series of requests for zero funding of these important programs. We believe that had you not been as strong a leader in support of energy efficiency appropriations that many state energy offices would have been forced to shut down. Federal funding of these programs is critical to maintain a balanced energy policy, especially in these times of rising oil imports and concern over global climate change.

In FY'90, these four programs received an increase for the first time in many years of 4/10ths of one percent. While not even sufficient to cover inflation, this increase was a strong symbolic step. We are here today asking for a significant increase in the funding levels for these programs. We believe that SECP should receive $17.65 million, ICP should receive $35 million and EES should receive $7.35 million. Overall this request of $60 million dollars is a start in the right direction as the oil overcharge refunds decline. At the present time these programs receive approximately $39 million.

Despite the Administration's claims, which this Subcommittee has wisely never accepted, the oil overcharge refunds are a dwindling resource. As the recent report prepared by the National Consumer Law Center stresses, basically all of the oil overcharge refunds received by states have been allocated, with a majority actually obligated. Our recent cold December has exacerbated this problem by increasing the flow of oil overcharge refunds away from conservation programs to the necessary but short term program of Low-Income Home Energy Assistance (LIHEAP). The simple fact is that the dramatic cuts in the funding levels for the SLAP programs from $557.6 million in FY'79 to the present level of $200.75 million and the LIHEAP cuts from $2.1 billion in FY'85 to $1.39 billion in FY'90 have more than offset the oil overcharge refunds. The Administration is dead wrong is suggesting that all this free money is sitting around without a purpose.

As we in this country become increasingly concerned over the importation of oil which has topped the 50% mark once again, we need these programs more than ever.

As we are increasingly made aware of the linkage between energy and the environment, and recognize that energy efficiency is the least expensive resource we can acquire, these programs become ever more significant.

The state energy programs developed innovative approaches in all relevant areas during the last few years, while the federal government's role has diminished. I have attached to my testimony a report prepared by NASEO providing examples of effective state energy programs. Positive programs have been instituted in every state in the Country and certainly in each of the states represented on this Subcommittee.

For example, a number of states have instituted agricultural energy efficiency programs such as the promotion of ethanol, rural water efficiency programs, renewable resources used for grain drying, and agricultural energy education programs. These are real programs with identifiable energy and dollar savings.

In the commercial and industrial sectors the energy offices have instituted a variety of programs where intensive energy audits have been coupled with low or zero interest loans to conduct the energy efficiency upgrades. This has the dual benefit of reducing energy usage and promoting economic development by making our businesses more competitive with our foreign trading partners. In New York State, the Energy Advisory Service to Industry has conducted 28,000 audits and has produced energy savings of $50 million annually.

In the environmental/energy area, a number of state energy offices have initiated recycling programs which have obvious benefits. Pennsylvania has instituted an aggressive program including the support of a "de-inking" facility for newspapers. Another aspect of the Pennsylvania program reuses old newspapers for bedding material for farm animals. Connecticut has also started an innovative recycling program. Other states, such as Wisconsin, have instituted a program to promote environmentally sound waste to energy facilities.

Individual state energy offices have instituted building energy code and home energy rating programs. In Washington State, the energy office recently led the successful fight to enact state legislation to increase the energy efficiency of new buildings. Similar efforts have been instituted in California, New York and elsewhere. In the area of home energy ratings, states such as Alaska, Arkansas, Mississippi and Vermont have instituted programs, some tied to energy efficient mortgages, which help to recognize the long term cost savings associated with energy efficient homes.

State energy offices have used the Energy Extension Service as a vehicle for technology transfer to client groups, especially business and industry. In Washington, for example, the Lighting Design Laboratory and the Commercial Information Clearinghouse have helped stimulate market demand for energy efficient products. In Alabama the state energy office contracts with Auburn University to operate energy instructional seminars which has led to documented energy savings of approximately $4 million per year. This program has operated for 13 years. The state energy offices are the key technology transfer vehicle from certain DOE Laboratories to the private sector and the residential market. For example energy offices in Arizona, New York, Puerto Rico and Texas have made extensive use of the photovoltaic design assistance center at Sandia National Laboratories. The state energy office in our State of Illinois has a close working relationship with Argonne National Laboratory. We are working together to develop ethanol powered vehicles and in the new developing technology of high temperature superconductivity. Through the BIRL Laboratory at Northwestern University, the Illinois energy office is supporting superconductivity research with energy conservation grant monies. Without the state role, the good work of these laboratories would not be fully disseminated, and thus would be limited in its usefulness.

The ICP program provides grant funding of 50% of each project which are matched by the schools or hospitals. As a result of this program energy efficiency activities have been instituted in approximately 65,000 building with cumulative energy cost savings of over $2 billion. This program has assisted less than 30% of the schools and hospitals built before 1977. The savings have greatly exceeded the investment, yet there is more to do. In Illinois for example, ICP Grants to Northwestern University of nearly $700,000 in the seventh and ninth grant cycles have provided improvements to the institution which will result in $20,900,000 in savings over the life of the projects.

Congress is moving ahead at the present time to update the statutory basis of the SLAP programs. On January 25, 1990, the Senate passed by unanimous consent S. 247, the "State Energy Efficiency Programs Improvement Act." The House companion to this bill, H.R. 711, is scheduled to be marked-up in the House Energy and Power Subcommittee in the near future. This important bill would finally establish energy emergency planning as a mandatory function under SECP. The bill also would encourage the development of alternative motor fuels, industrial energy efficiency programs, integrated energy (least-cost) planning, energy efficiency ratings programs, energy and economic development programs, demand management programs, innovative financing programs such as performance contracting, and new programs to assist not-for-profit institutions in energy efficiency projects. The bill would establish a new State Energy Advisory Board to replace the old Energy Extension Service Advisory Board. This Board would advise the Department of Energy in its technology transfer efforts, recommend changes to DOE programs and assist in providing feedback on DOE research and development programs.

S. 247 and H.R. 711 would also establish authorization levels for these programs which are consistent with our request to you today.

The states have become increasingly focused on energy emergency planning. We have worked closely with DOE's Office of Energy Emergencies and the Strom Thurmond Institute of Clemson University in developing programs to increase state and federal emergency preparedness. We strongly support funding for the energy emergency function of the Department of Energy. With oil imports increasing to 50% and the fragile nature of our energy distribution system in this country, coordinated energy emergency preparedness is critical.

We continue to support the Least Cost Utility Program funded by this Subcommittee. We have worked closely in our individual states with our Public Utility Commissions, and we have a joint committee with the National Association of Regulatory Utility Commissioners to promote energy efficiency and renewable energy programs at the state and federal level.

We also support funding for the conservation research and development activities of the Department of Energy. While we are very disappointed with the zero funding request for the SLAP programs, Assistant Secretary Davis is to be applauded for moving the R&D budget request in the right direction. While the funding level is not up to last year's appropriated levels, it is far better than prior Budget requests. Conservation R&D works hand-in-hand with the SLAP programs to disseminate the positive work of the Department in this area.

NASEO supports the tenets of the Alternative Motor Fuels Act of 1989, and supports continued funding of its programs.

CONCLUSION

In conclusion, increased federal funding of the energy conservation activities carried out through the State and Local Assistance Program is essential to maintaining a secure energy future. History has proven that these programs are very cost-effective returning through energy savings many times the federal investment. These state energy programs impact every sector of the economy from large businesses to low-income homes. These programs help schools and hospitals to invest more in education and medical care than in wasted energy. These programs make us more competitive internationally and produce direct economic and environmental benefits at home. Energy efficiency is the least expensive way to address environmental problems associated with energy use, and the state energy programs provide a very inexpensive delivery system. We urge you to increase funding for these important programs.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/CONSERVATION—LEAST COST PLANNING

WITNESS

RICHARD E. MORGAN, PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

Mr. DICKS. Richard E. Morgan, Public Service Commission of the District of Columbia, representing the National Association of Regulatory Utility Commissions.

Mr. MORGAN. Thank you, Mr. Chairman.

Mr. DICKS. Nice to have you here, Mr. Morgan. We'll put your statement in the record, and you have five minutes to summarize.

Mr. MORGAN. Okay. My name is Richard E. Morgan. I'm an economist with the Public Service Commission of the District of Columbia. I'm testifying on behalf of NARUC, which is the National Association of Regulatory Utility Commissioners, representing public utility commissioners from across the country.

I'd like to begin by thanking the subcommittee for its support for strong research and development programs on conservation as well as other conservation programs and particularly for its attention to one tiny program which is vitally important to State utility regulators. That is the least cost utility planning integrated resource planning program, known as LCUP/IRP.

The DOE has also recognized the importance of these cost-integrated resource plans. For the first time this year it is proposing an adequate funding level of $3.9 million for this program. DOE has also made least cost planning the centerpiece of its new energy efficiency initiative which Deputy Secretary Henson Moore unveiled in January.

Before talking about why these higher funding levels are needed, I'd like to give you a little bit of background about least cost planning. It is a relatively new regulatory tool used by public utility commissions. It requires utilities to consider a broad array of supply-side and demand-side resources and choose the least cost mix of resources to meet consumer needs.

Under least cost planning, for example, regulators might require high efficiency lighting investments by utilities rather than investing in a new generating plant. There are about 30 states that are either using or implementing least cost planning. They are saving billions of dollars for utility ratepayers.

The LCUP/IRP program is a unique opportunity to save enormous amounts of energy nationwide just by spending $2 million at the Federal level. States are implementing least cost planning. As an example, some of these states have their utilities investing large amounts of money on energy conservation as a result of using least cost planning.

For example, in Wisconsin, utilities are spending about $130 million a year on energy conservation programs. In New York State, it is $160 million a year. In California, it is about $300 million a year. All three of these states are drawing on the resources of the LCUP/IRP program which is helping them to get more bang for the buck out of these conservation programs which, nationwide, we're talking about billions of dollars and probably a lot more in the future.

With modest funding levels for the LCUP/IRP program in the past, we have made a lot of progress. We have held two national conferences which included representatives of the public utility commissions from 45 states. We published a number of handbooks such as these on least cost utility planning which are——

Mr. DICKS. Do we have copies of those?

Mr. MORGAN. I'm sure Mr. Kripowicz has copies.

Mr. DICKS. Have you got a couple extra for me?

Mr. MORGAN. I'd be glad to. These handbooks are widely used by utility commissions across the country exploring least cost planning.

Also, we have made progress in technical assistance for State utility commissions developing conservation incentives. For example, a DOE-funded research project has identified ways that the traditional rate-making process tends to discourage utilities from investing in conservation.

In 18 states, they are now exploring new kinds of incentives for utilities to invest in conservation. Another result is that utilities are beginning to develop systems for collecting and evaluating data on the performance of demand-side conservation measures. They are documenting evidence that——

Mr. DICKS. When you say "demand-side," what does that mean? Consumer?

Mr. MORGAN. Demand-side means anything that affects the usage of energy rather than simply supplying more energy to meet an assumed demand.

Mr. DICKS. All right.

Mr. MORGAN. It's a little broader than conservation. It means not only conserving energy but also shifting peaks around, that sort of thing, too.

Mr. DICKS. All right.

Mr. MORGAN. To affect the way energy is used.

The new and——

Mr. DICKS. You have about 30 seconds left.

Mr. MORGAN. Let me list very quickly a few new and expanded programs that can come out of the additional funding. Promotion of least cost utility planning to ensure exploring integrated resource planning for gas utilities, providing direct assistance to states in implementing least cost planning, particularly small states that need extra assistance, expanding networking and training for State utility commission personnel, developing mechanisms for evaluating regulatory incentive programs to promote conservation, exploring the potential for a single national standard for reporting and evaluating results of demand-side programs.

What really makes the LCUP/IRP program especially effective is the way it leverages other resources, not only what is spent at the State level, but also what is spent on other conservation programs because these programs often are slow to be accepted in the marketplace, yet the LCUP program helps to deliver these programs, get them off the shelf and into millions of homes and businesses across the country.

Mr. **Dicks**. Thank you.

Mr. **Morgan**. We're also very concerned about the proposed cuts in other programs, lighting, windows, the private programs. We hope that those programs don't suffer because of some of the increases that DOE has proposed as well.

Thank you very much.

Mr. **Dicks**. Thank you, Mr. Morgan, for a very good statement. I think this sounds like a good use of our funds and resources.

Mr. **Morgan**. Thank you very much.

Mr. **Dicks**. Thank you.

[The prepared statement of Richard Morgan follows:]

National Association of Regulatory Utility Commissioners

Testimony of Richard E. Morgan
Public Service Commission of the District of Columbia

Mr. Chairman and other distinguished Members of the Subcommittee:

My name is Richard E. Morgan. I am an economist for the Public Service Commission of the District of Columbia. I am testifying today on behalf of the National Association of Regulatory Utility Commissioners (NARUC). NARUC is a quasi-governmental, non-profit organization founded in 1889. Within its membership are the governmental agencies of the fifty States, the District of Columbia, Puerto Rico and the Virgin Islands engaged in the regulation of carriers and utilities. NARUC's chief objective is to serve the public interest by seeking to improve the quality and effectiveness of regulation.

The purpose of NARUC's testimony is to support adequate funding levels for energy conservation programs in the Department of Energy's budget for fiscal year 1991.

Those of us who regulate utilities at the State level have a vital interest in the Federal government's funding of energy conservation programs. These Federal programs have helped millions of consumers to minimize their utility bills and have spurred the development of many new energy-saving technologies by U.S. industries. Due in part to the wise investments made by the Federal government over the past 15 years, energy efficiency has become the fastest growing energy source in the U.S. economy, and the most economical.

It would be difficult to find a better place to invest Federal funds than in energy conservation. When low-income citizens weatherstrip and insulate their homes with the help of the Federal Weatherization Assistance Program (WAP), for instance, the resulting savings repeat year after year, and it reduces their need for other assistance programs.

Similarly, Federally funded research and development has enabled U.S. industries to develop numerous energy-saving innovations which are cutting energy costs across the country by billions of dollars. Let me offer just one example of the impressive track record of Federal expenditures on energy conservation R&D: a $5-million expenditure of Federal funds has resulted in the development of more efficient lighting and window technologies which are expected to save consumers $36 billion--a return of 7000 to 1. Indeed, the energy-saving investments our country has made since the Arab Oil Embargo 16 years ago are saving our country $130 billion a year in energy bills.

Despite the great strides our nation has made in energy efficiency, much remains to be done. There are many more homes and buildings which badly need weatherization and many promising research opportunities which could turn into valuable new energy- saving devices. Federal funding for energy conservation programs has already been cut drastically since 1980, and it is essential that Congress not permit FY 1991 appropriations not be cut below the current bare-bones levels as the Administration has proposed.

NARUC appreciates this Subcommittee's past support for energy conservation programs and its efforts to prevent further erosion of funding for these vital programs. Your leadership has enabled DOE to maintain its excellent track record in providing energy conservation services to local communities while continuing to develop new energy-saving innovations.

Among the items in DOE's R&D budget, there is none more important to utility regulators than "Least Cost Utility Planning/Integrated Resource Planning," or LCUP/IRP. This tiny line item in DOE's R&D budget actually leverages millions of dollars worth of other conservation expenditures by overcoming market barriers to investments in energy efficiency.

Least-cost integrated resource planning is a regulatory tool whereby utilities are required to consider a broad array of resource options, including energy conservation potentials, as part of their planning process. Under integrated resource planning, State regulators might require, for example, that a utility invest in high-efficiency lighting for its customers instead of building a new power plant. In States like Wisconsin, Maine and California, least-cost planning has saved billions of dollars by facilitating investments in energy conservation and renewable energy sources.

Since its inception five years ago, DOE's LCUP/IRP program has played a catalytic role in the evolution of the least-cost planning process at the State level. With the help of Federal funding, utilities, regulators and local governments have teamed up with DOE's national laboratories to create a vibrant nationwide network for designing and implementing LCUP strategies.

DOE's LCUP/IRP program has provided invaluable assistance to state utility regultors, despite its modest level or funding -- $2 million or less in recent years. The program has funded two highly successful national conferences on least-cost planning as well as the development of analytical tools and research on financial incentives for utility investments in conservation. Handbooks and technical papers produced through the LCUP/IRP program are widely used by regulatory agencies in developing energy conservation and least-cost utility planning programs at the State level. DOE funding has also aided the development of new least-cost planning approaches in Ohio, Illinois and Rhode Island.

One of the most valuable products of the LCUP/IRP program has been assistance to state regulators regarding financial incentives for utility conservation investments. A DOE-funded research project identified ways in which the traditional rate-setting process discourages utilities from pursuing energy conservation. As a result, 18 states are now exploring new types of regulatory incentives for conservation.

Another valuable product of the LCUP/IRP program has been the collection and evaluation of data regarding the performance of energy conservation programs. In order for demand-side measures to compete with energy supply resources, utilities need documented evidence of conservation savings potential. With assistance from the LCUP/IRP program, the utility industry is developing new data collection systems for demand-side technologies which will facilitate better evaluation of conservation potentials.

Recognizing the success of least-cost integrated resource planning at the state level, the Department of Energy has proposed a major expansion of the LCUP/IRP program for FY 1991 --increasing its funding level to $3.9 million. DOE has made LCUP/IRP the centerpiece of its new energy efficiency and renewables initiative which Deputy Secretary Henson Moore unveiled in January. That initiative includes expanded assistance to states pursuing least-cost planning as well as an initiative to promote least-cost planning through the Federal Energy Regulatory Commission (FERC). Significantly, DOE received numerous endorsements for least-cost planning during its recent hearings on its developing National Energy Strategy.

Given the growing interest in least-cost planning across the country, NARUC believes these increased funding levels for LCUP/IRP are badly needed and will represent a wise investment in the nation's energy future.

The increased funding levels for LCUP/IRP will allow the program to undertake several new initiatives while expanding its existing services. In addition to the FERC initiative, DOE will be able to expand its LCUP/IRP program into two other new areas. Addtional funds will enable DOE to explore integrated resource planning for natural gas utilities and to provide badly needed financial assistance to individual states seeking to implement least-cost planning.

Increased funding levels will also make new resources available for priority areas such as designing regulatory incentives for conservation, quantifying environmental externalities in the planning process, and providing networking and training functions to state commissions. All of these functions are in need of expansion.

Now that many states are exploring regulatory incentives for utilities to invest in conservation, a mechanism is needed to monitor these innovations, evaluate their effectiveness and report the results to utilities and regulators across the country. Utilities and regulators also need to develop a single national standard for evaluating and reporting the results of demand-side energy programs. These ambitious projects promise enormous energy savings, but they could never be undertaken with federal assistance.

The effectiveness of least-cost integrated resource planning is illustrated by the financial resources which utilities are expending on demand-side measures in states where it has been adopted: $130 million annually in Wisconsin, $160 million in New York, and $300 million in California, for example. By assisting State utility commissions in implementing least-cost integrated resource planning, DOE's LCUP/IRP program can leverage billions of dollars in utility funds for investment in low-cost energy conservation programs. Thus, as DOE has recognized, LCUP/IRP can be a powerful tool for implementing national energy policy.

In creating innovative programs like LCUP/IRP, Congress recognized that hardware alone does not deliver energy savings. The LCUP/IRP program ensures that energy-saving devices will not be left on the shelf simply because utilities and their customers lack the knowledge or financial incentives to make cost-effective efficiency improvements. Because it can deliver energy-saving measures to millions of homes and businesses across the country, LCUP/IRP is an essential part of DOE's energy conservation R&D program.

Two dozen national organizations concerned with energy conservation are currently developing a list of priorities for DOE's conservation programs under the auspices of the Alternative Budget Coalition. We hope that the Subcommittee will carefully consider the Coalition's forthcoming recommendations, which will highlight those programs which we believe offer the greatest energy-saving potential for the future.

In particular, State regulators are concerned about cuts that DOE has proposed for research on high-efficiency lighting and windows, as well as its innovative Micro-Climate Research Program, which explores the potential for trees to reduce air pollution and cooling needs in cities. These research programs promise substantial energy savings for our nation in the future.

The growing urgency of the threat of global warming underscores the importance of DOE's energy conservation programs. In addition to reducing consumers' energy bills, energy efficiency improvements offer enormous potential for reducing emissions of "greenhouse gases." State utility regulators are prepared to do their part in addressing the problem of global warming by adopting innovative energy conservation and least-cost planning programs. In order for our nation to adequately address the threat of global warming, however, the Federal government must increase its commitment to energy conservation programs, including R&D initiatives such as LCUP/IRP, as well as State and local programs.

I would like to thank the Subcommittee for offering NARUC the opportunity to present its views on this matter.

Resolution in Support of Federal Research on Energy Conservation and Renewable Energy Technologies

WHEREAS, *The Nation's growing dependence on imported oil supplies threatens our future well being and security; and*

WHEREAS, *The ability of the Nation to adjust to future energy supply constraints will depend on improvements in energy efficiency and the development of renewable energy technologies; and*

WHEREAS, *Renewable energy technologies and energy efficiency improvements are often highly cost effective and are essential to the achievement of environmental goals including a reduction in acid rain, the "Greenhouse effect" and damage to trees, crops and public health; and*

WHEREAS, *A vigorous research program on energy efficiency and renewable energy technologies must be given a high priority now if the Nation is to have the new technologies and products needed when energy supplies become increasingly constrained; and*

WHEREAS, *Federal funding for research and development on energy efficiency and renewable energy technologies has been cut by more than 70 percent since 1980; now, therefore, be it*

RESOLVED, *That the Executive Committee of the National Association of Regulatory Utility Commissioners (NARUC), assembled at its Winter Meeting in Washington, D.C., requests Congress and the Department of Energy to increase the funding for research and development and commercialization of energy conservation and renewable energy technologies, so that a balance will be achieved in our Nation's energy programs.*

Sponsored by the Committee on Energy Conservation
Adopted February 28, 1990

National Association of Regulatory Utility Commissioner
Incorporated

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Fact Sheet: LEAST-COST UTILITY PLANNING

Although cost-effective energy-saving opportunities abound in our country, such measures are adopted slowly and sparingly due to persistent institutional and market barriers. In addition to consumers' lack of information and their reluctance to incur the high first cost of some conservation measures, there is often a reluctance by utility companies to encouraging energy efficiency improvements which threaten to reduce sales of their product.

Regulation of utilities offers an opportunity to overcome these barriers through the adoption of innovative utility planning strategies. Utility regulators at the state level have developed a promising tool known as "least-cost utility planning," whereby utilities consider a broad array of energy resource options (including energy efficiency improvements) and choose the mix of options which offers the lowest long-term cost to consumers.

Experts predict the nation could reduce its energy bills by billions of dollars annually by incorporating cost-effective energy efficiency measures into utility planning. Moreover, least-cost utility planning can offer cost-effective solutions to environmental problems such as acid rain and global warming.

Through DOE's Least-Cost Utility Planning (LCUP) program, utilities, regulators and local governments have teamed up with DOE's national laboratories to create a vibrant nationwide network for designing and implementing LCUP strategies. The LCUP program helps to document least-cost planning success stories in areas like the Northwest and Wisconsin so that they can be adapted to other jurisdictions.

Another priority of the LCUP program is the development of new least-cost planning tools for state regulators. These include analytical devices such as improved computer models for utility planning, as well as innovative regulatory strategies such as demand-side bidding and ratemaking incentives for utilities to pursue conservation.

Success stories, analytical tools and innovative regulatory strategies are shared through workshops, conferences, technical papers and an electronic communications network. In recent years, the LCUP program has produced a series of least-cost planning resource materials for utility regulators as well as two national conferences on least-cost planning attended by regulatory officials from 45 states.

Despite the impressive accomplishments of DOE's LCUP program in its first few years, there remains a long list of priorities for future work on least-cost utility planning (see box below). Much work needs to be done on data collection, computer modeling and the development and monitoring of utility financial incentives. Moreover, the national networking function facilitated by DOE will continue to play a vital role in this rapidly developing field.

Least-cost utility planning ensures that cost-effective energy efficiency measures will not be left on the shelf simply because utilities and their customers lack the knowledge or financial incentives to make cost-effective efficiency improvements. Because it can deliver energy-saving measures to millions of homes and businesses across the country, LCUP is an essential part of DOE's energy conservation R&D program.

Recognizing the enormous potential benefits of least-cost utility planning, the U.S. Department of Energy is seeking to expand the LCUP program. For fiscal year 1990, DOE has internally reprogrammed R&D funds to supplement the appropriated $1.3 million for LCUP to a level of $2 million. In order meet the expanding needs of the LCUP program in FY 1991, DOE has requested appropriations of $3.9 million. NARUC believes these funding levels represent the minimum amount required to meet the growing needs of state utility commissions which are implementing least-cost utility planning.

Priorities for Future LCUP Work

- Continue to stimulate successful implementation of least-cost utility planning at the State level
- Expand networking function which shares LCUP successes, analytical tools and innovative regulatory strategies among state utility regulators
- Develop a reliable data base documenting the performance and cost of various demand-side options which can be incorporated into utility planning
- Develop modeling software to simplify demand-side resource analysis by utilities and regulators
- Develop regulatory alternatives which reward utilities for successful implementation of energy efficiency measures
- Develop means of incorporating environmental and other social costs into LCUP analysis
- Develop a manual for evaluation of utility least-cost plans
- Develop least-cost planning mechanisms for gas utilities

Prepared by:
Richard E. Morgan
DC Public Service Commission
February 1990

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/CONSERVATION—ENERGY ANALYSIS AND DIAGNOSTIC CENTER

WITNESS

ROBERT LAWRENCE, INDUSTRIAL TECHNOLOGY AND ENERGY MANAGEMENT UNIVERSITY CITY SCIENCE CENTER

Mr. DICKS. Robert Lawrence, testifying for the Industrial Technology and Energy Management University City Science Center.

Mr. LAWRENCE. Thank you very much, Mr. Chairman. I'm here to support the testimony of Dr. William Kirsch. I have to apologize for Mr. Kirsch. He wished me to tell you that he is sorry he could not be here. He is out in the southwest today conducting some of the energy audits that his group is so well known for.

The energy analysis and diagnostics center's program began in 1976 as an experiment. Today it includes 13 different university groups serving 39 states. A recent Department of Energy release mentioned that it is the Department's plan to move this 13-university group up to 40 by the year 2000 because of the incredible success that this program has had over the years.

For each dollar that the taxpayers spend on this program, Mr. Chairman, revenues returned to the Government are between $1.40 and $2.20 per each $1.00 spent, the reason being that the upgrading in the manufacturing facilities has been so successful that their profits have increased to the point where they pay increased taxes, so it is a program where everybody wins. The universities win. The small- and medium-sized manufacturers who are served win, and the Government wins. Certainly our Nation, as a whole, our competitiveness and our taxpayers are all winners in this program.

I am here to ask you for $2.5 million for this program for fiscal year 1991. With this $2.5 million we can move the number of EADCs from its present 13 up to 19. Within the past year, the University of Missouri at Raleigh has been added as well as Arizona State.

The small- and medium-sized manufacturing plants served are ones which have gross annual sales of $50 million or less, consume energy at a rate of $1.5 million a year or less, employ not more than 500 persons, and do not have in-house energy expertise.

Through the some 2,300 manufacturing plants that have been served now, the internal rates of return at these plants have been calculated between 200 and 600 percent per year. The plants themselves get as much as $3.80 for every $1.00 they invest in energy cost savings.

I think the committee is very familiar with this program and has been supportive in past years, Mr. Chairman. I know Dr. Kirsch is one of the most dedicated scientists and engineers I have ever met. I would strongly encourage the committee to look at the $2.5 million.

Mr. **Dicks**. We appreciate it, and we appreciate your pinch-hitting for Dr. Kirsch. We think this work is very important, and we'll do our best to continue to support it.

Mr. **Lawrence**. Thank you, Mr. Chairman.

[The prepared statement of William Kirsch, as submitted by Robert Lawrence, follows:]

HOUSE OF REPRESENTATIVES

APPROPRIATIONS COMMITTEE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

March 8, 1990

Testimony prepared by

Dr. F. William Kirsch, Vice President

Industrial Technology and Energy Management
University City Science Center
3624 Market Street
Philadelphia, PA 19104
(215) 387-2255

I would like to thank the chair and the other members of this subcommittee for the opportunity to speak on behalf of energy conservation and, especially, energy conservation among small and medium-size manufacturers. I am William Kirsch, director of the Energy Analysis and Diagnostic Center program, an industrial energy conservation program supported by the Department of Energy at a projected rate of about $1.7 million/year.

This program has identified more than $500 million in cost savings for about 2800 small and medium-size manufacturers. Moreover, we know that, from one year to another during its history, half to three-quarters of the energy-conserving and cost-saving potential has been implemented by these same manufacturers.

What I am asking is for the Congress to continue support of a program which for over 13 years has been generating far more dollars for the federal government than it has cost. However, without continued federal support -- the kind of support which is truly seed money -- the EADCs cannot survive. Let me explain why federal support is needed and profitable.

The EADC program has two chief goals. The first is to help small and medium-size manufacturers to become or remain competitive by reducing their energy costs through more efficient manufacturing operations. The second is to offer engineering graduate and undergraduate students opportunities to gain practical industrial experience as part of their education.

To fulfill these goals, university engineering faculty and students perform on-site analyses of plants' manufacturing operations and their energy use. They make specific recommendations to improve the plants' efficiency and competitiveness and present these results through individualized reports. My staff and I review all of these reports and verify their results through interviews we conduct in person with a large number of manufacturers. Further, we require these same faculty to find out later how much of what they recommend is actually implemented.

During 1988 my staff and I interviewed 227 of these manufacturers, and here is a brief summary of what they told us:

- The EADC program is a good expenditure of taxpayers' money: 93%
- Energy audit reports are considered extremely well done or well done: 93%
- Manufacturers agree with all or most of the conclusions expressed in those reports: 86%
- Manufacturers are implementing at least some energy-conserving and cost-saving recommendations: 92%.

EADCs' audit reports are being widely distributed in these plants to people who are in positions of responsibility and authority. For example 28.6% of those who saw the reports are company owners or corporate officers, and another 16.7% are plant managers or general managers.

All these numbers can be convincing about the EADC program's impact and cost-effectiveness. But the most memorable experiences come from the manufacturers who tell us -- in person and by letter -- what the program has meant to them and to their employes.

One such plant in Oklahoma makes drill bits for the oil and gas industry. Shortly after I visited the plant to evaluate the EADC's work, the plant manager sent me a letter in which he praised the EADC's work but sadly reported the company had just filed for bankruptcy under Chapter 11. About a year later he wrote again to say that his plant's gains in efficiency had led corporate headquarters to reassign work there from other company plants. Moreover, he expected the Chapter 11 status to be lifted.

Our files have many letters of appreciation from manufacturers, but we know that not all their problems have happy endings. But there is no doubt that they like what the EADCs do for them and that they benefit from the work.

Equally memorable are the letters we receive from students who have worked at an EADC. Let me quote a few excerpts from one such letter:

> I will be graduating this July with my Masters of Science in Mechanical Engineering. Not only did this program allow for me to further my education but it provided me the opportunity to graduate with a "craft" ... energy conservation. In addition, the experience of analyzing nearly fifty different manufacturing facilities with a professional like Dr. Henry Chuang is invaluable.
>
> A tangible example of the effectiveness of the EADC program is an experience I had in May of 1987, after working within the program for only four months. I returned home to Cleveland, Ohio to look for summer employment. I began randomly calling engineering firms. During my fourth call I was hired for employment over the phone, after a forty-five minute conversation, by a mechanical engineering consulting firm. In addition, I was awarded many challenging assignments while working for this firm because of my confidence and practical background. There is no doubt in my mind that this personal success was anchored to my participation in the EADC program.
>
> The EADC program seems too good to be true in that everyone wins; the manufacturing facilities, colleges, government, participants, and even the engineering community.
>
> Thank you once again for your work in this program. I has been a pleasure working with you.
>
> Sincerely,
>
> Scott K. Jordan

The Department of Energy has recently announced some new and expanded initiatives for energy conservation. Clearly I do not speak for DOE, but I was pleased to see the EADC program included among these initiatives.

To support the expanded level of program work anticipated for EADC during FY 91 will require about $2.5 million. I earnestly ask the Congress to support that figure, and I do it for a program which has generated over $500 million of cost savings for manufacturers for an initial outlay of about $11.5 million in federal funds. Of course, our implementation results show that within 5 years the government more than recovers its expenditures through taxes on the incremental income of the manufacturers; and this recovery occurs at a rate of $1.40 to $2.20 for every federal dollar expended.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/CONSERVATION—FUEL CELL BUS

WITNESSES

REV. T. BYRON COLLINS ASSISTANT TO THE PRESIDENT OF GEORGETOWN UNIVERSITY FOR FEDERAL RELATIONS

REV. WILLIAM L. GEORGE, ASSISTANTS TO THE PRESIDENT OF GEORGETOWN UNIVERSITY FOR FEDERAL RELATIONS

Mr. DICKS. Yes. Now we have the Reverend T. Byron Collins and the Reverend William L. George from Georgetown University here.

We just received a phone call from former Congressman Boland, and he wanted to just make certain that you felt welcome here. I said that, knowing Father George for a long time, I knew he'd feel very welcome here at the Interior Subcommittee. Come on up. I understand you want to talk about fuel cells.

You have five minutes to do it.

Father GEORGE. Mr. Chairman and members of the committee, I am Father George. With me is my mentor, Father Collins.

I wish to, on behalf of the university, thank the committee for the support you have given us over the years on the phosphoric acid fuel cell program. We must have come of age because the Department of Energy put the $2 million request this year in their budget, and we'd like to just ask you to support that, which is a rarity for me. The Department really believes in it. The feasibility study we did showed that the fuel cell was actually more efficient than we had anticipated when we began this years ago. I ask you to support that.

I always put a plug in for my waterfowl down in the Chesapeake Bay. I always think of Kent Island which has just gone. It was the best duck marks in the entire eastern shore up until everybody built there. Please keep some money in keeping encroachment away from the wetlands. Be careful of predators. We've got to do something to control those guys because of the way farmers practice these days. That's an "eastern shore boy" talking.

Mr. DICKS. Well, we have the same problem out on the west coast, too, so I think it certainly is a national concern and something on which this committee has provided leadership on in the past, and we'll continue to. Our members are very interested in that issue.

Father GEORGE. Thank you. Father Collins?

Mr. DICKS. Next is Father Collins.

Father COLLINS. I have in the record an explanation on some detail of our national exemplar under the clean coal technology, a program of the Federal Government, and we would propose to—it has three parts to it. The first part is a co-generation, a molten carbonate fuel cell. That program would be done here in the Nation's capital. The second part is a site in West Virginia that would take coal gasification and join it to the molten carbonate fuel cell. The third part is the manufacturing and sale of these.

The program is designed, as we do with a national exemplar, as an association, a cooperation of this committee with the Department of Energy and a team of experts, both in planning and production, that Georgetown has.

The third phase is the buying, manufacturing, and selling of these instruments, a coal gasifier, and a molten carbonate fuel cell. We have been working with EPRY, the group that said they will take 50 of these. We also have 500 universities that would be in the market for it.

We specifically ask the committee to support planning funds for this.

Mr. DICKS. How much is that?

Father COLLINS. The present estimate is between $1.5 and $2 million.

Mr. DICKS. All right. Well, we'll put both statements in the record, and you did that very succinctly. We appreciate it, and we've always appreciated the good relationship between Georgetown and the United States Congress.

[The prepared statements of Father George and Father Collins follow:]

Testimony Before the Committee on Apprporiations
Subcommittee on the Interior

U.S. House of Representatives
B-308 Rayburn

March 8, 1990
10:30 a.m.

Rev. T. Byron Collins, S.J.
Rev William L. George, S.J.

Assistants to the President of Georgetown University
for Federal Relations

HOUSE INTERIOR APPROPRIATIONS FOR FY91

NATIONAL EXEMPLAR

Mr. Chairman and members of the committee, I am Rev. William L. George, S.J., Assistant to the President of Georgetown University. Thank you for the opportunity to testify on the subject of Hybrid Fuel Cell Buses

We wish to support the Department of Energy request of $2.0 million for the Fuel Cell Bus program.

Phase I of the National Exemplar Hybrid Fuel Cell Bus program has been completed. This phase consisted of a "proof of feasibility" study that evaluated the potential of both liquid and air cooled systems. The results have been compiled and one system has been shown to be far superior in regards to greater efficiency, a better interface system, and higher current densities which produce a smaller volume and facilitate placement in a test bed bus. The Department of Energy, in concurrence with the Urban Mass Transportation Administration and the Battelle Memorial Institute, has approved of the results of Phase I and has decided to continue with Phase II.

Phase II of the project will consist of the development of the propulsion system based on the empirical findings of Phase I and the integration of the completed propulsion system into a test bed bus. A Request for Proposal is being put out to select the contractor for Phase II which stipulates that the best system for the fuel cell be used for Phase II.

In April 1987, one goal of the project was "to provide the transition of this emerging technology to actual commercial use". The project may be well ahead of schedule in accomplishing this goal. The California South Coast Air Quality Management District (SCAQMD) Board of Directors has approved support of this program by contributing some of their own funds to the Department of Energy. They have clearly expressed their intention to obtain an additional fuel cell bus in Phase II for test and eventual use in the Los Angeles basin, a region plagued by air and noise pollution. The SCAQMD Board of Directors appears confident that the fuel cell bus is an economically viable solution to their area's environmental dilemma.

According to the Congressional Budget Request for the Department of Energy regarding Electric Vehicle Propusion Systems (located under the transportation sector of Energy Conservation), on page 362 of Volume 5, the Department of Energy has requested $2.0 million "to continue development of fuel cell/battery hybrid propulsion system for an urban bus application. The effort would include integration into vehicle and road testing."

Additionally, as stated in the Budget of the United States under the transportation sector of Energy Conservation, "The fiscal year 1991 transportation program will support . . . development and testing of electric and hybrid vehicle . . . propulsion systems."

Fuel cells offer an energy source that is unparalleled by any which exists today. It provides clean and efficient power in an age which has seen an explosion in the demand for energy and the need for reduction in the pollution levels. The Hybrid Fuel Cell Bus program is the impetus for a commercial venture that will last well into the next century. We thank you and the committee for your past support of this timely venture and would ask your committee to support the Department of Energy request so that this project may go forward.

On another note, the waterfowl population is showing the effects of encroachment and loss of wetlands. My trips to the Chesapeake Bay have confirmed the environmentalists' predictions and findings. I hope the wisdom of this Committee provides the funds necessary to encourage farmers to preserve marshes, wetlands, and shoreline and to encourage industry to properly dispose of their waste.

We do not have a lot of time to reverse current trends. Otherwise, in a few generations, children will not have the pleasure of the Bay as we know it.

On behalf of Rev. Leo J. O'Donovan, S.J., President of Georgetown University, I thank you for the opportunity to testify.

SCHEDULE

Advertised in the Commerce Business Daily	February 1990
Request for Proposal	Early March 1990
Contract Phase II	June 1990
First Bus Under Test	June 1992
First Bus Delivered	September 1992
Second Bus Delivered	November 1992
Third Bus Delivered	December 1992

Phase II ending 30 months from the date of contract (December 1992)

Testimony Before the Committee on Apprporiations
Subcommittee on the Interior

U.S. House of Representatives
B-308 Rayburn

March 8, 1990
10:30 a.m.

Rev. T. Byron Collins, S.J.
Rev William L. George, S.J.

Assistants to the President of Georgetown University
for Federal Relations

HOUSE INTERIOR APPROPRIATIONS FOR FY91

A NATIONAL EXEMPLAR

Sixty to sixty-five megawatt cogeneration systems (two sites) molten carbonate fuel cells (MCFC)/coal gas/appropriate cogeneration fuels in a commercialization program at a cost of $2,480 to $2,688 per kilowatt in a simultaneous five year total effort with approximately 50% cost share private/federal.

Georgetown University has successfully completed national exemplar energy projects and has integrated them into a master utilities/energy plan. This plan is the successful result of the Department of Energy's integrated community/energy programs of the 1970's and 1980's. This successful federal program led by Georgetown University resulted in commercially readied proven clean coal, community energy systems, photovoltaics, cryoaquatic systems, army fuel cell/coal gasification studies, and current fuel cell hybrid battery bus program. The University funded master utilities/energy plan (Exhibit A) places at high priority its new central University funded utilities plan 56 MW cogeneration system. This qualifying cogeneration system is now on track with avoided costs agreement settled and has a 1993 completion. The master integrated community energy plan requires (6) 2 - 5 MW fuel cell cogenerators to be integrated into the entire panoply of energies to gain ultimately self-sufficiency and perform as a model for District of Columbia comprehensive energy plan and especially for Higher Education Institutions. The first of these necessary fuel cell cogenerators is the proposed molten carbonate fuel cell (MCFC1) fueled by the source of energy that is associated with the integrated cogenerator to first perfect the generic MCFC so that in parallel (simultaneously) a more efficient mated coal gasification system can be developed at a site (to be determined) in West Virginia near coal deposits readied for MCFC2 integration. The perfected MCFC2 with coal gas controls would be coupled as a complete integrated fuel cell/coal gasification system at the West Virginia site. This program is three years for MCFC1 while simultaneously developing more efficient coal gasification and molten carbonate fuel cell system complete (MCFC2) at year five. Detailed plans for scheduling and cost sharing will be submitted at a later date.

The University proposes to use its historically successful management process. See Exhibit C attached. The joint University-Department of Energy overall management (technical/contracts) with National Technical Advisory Panel, oversees both proposed sites with a major systems integrator to be competitively acquired.

GOAL: Achieve in five years, two MCFC units, one generic system (MCFC1) fueled by a source of energy that drives the integrated energy system cogenerator, a second perfected (MCFC2) fueled by coal gas efficiently gasified readied for commercialization with approximately 50% cost sharing engaging the national coal, natural gas, utilities, users, manufacturers industries.

SUMMARY OBJECTIVES: (See Exhibit B)

Phase I(A): in three years plan, program, design, fabricate, construct, implement, test, operate a 2 - 5 MW MCFC1 at an appropriate site in the nation's capital.

Phase I(B): simultaneously in five years plan, program, design, fabricate, construct, test, and operate more efficient 5 to 10 MW coal gasification system in West Virginia.

Phase II(C): debug/improve design as required on MCFC1 to plan, design, fabricate MCFC2, with mated coal gas controls read for integrating with improved coal gasification system at West Virginia site. This phase begins end of year three and completes the phase at end of year five.

COMMERCIALIZATION of MCFC/coal gasification/compatible multi-fuel systems will be pursued by the team as outlined in Exhibit C and as scheduled in Exhibit B. Early on in the first year program, the team will secure commitments from the cost share elements interested in the coal gasification and power fuel cell applications, i.e. Electric Power Research Institute will be requested to secure 50 electric utilities to buy MCFC fuel cells at the successful completion of MCFC1.

IN THE BUDGET OF THE UNITED STATES under Fossil Energy Research and Development, Coal R & D, "The objectives of this program will be to continue generic, technology base and environmental research to provide an adequate scientific and engineering knowledge base to foster technological advances by the private sector... These efforts will include the Advanced Research and Technology Development Liquefaction, Control Technology and Coal Preparation, Combustion Systems, Fuel Cells, and Surface Coal Gasification programs... Efforts will also continue to utilize our coal resources by continuing programs in the areas of Coal Liquefaction, Fuel Cells, and Heat Engines. Environmental efforts will also continue within the Underground Coal Gasification program."

IN THE BUDGET OF CLEAN COAL TECHNOLOGY the necessary expenses of, and associated with, Clean Coal Technology demonstrations pursuant to 42 U.S.C. 5901 et seq., $600,000,000 shall be made available on October 1, 1990, and shall remain available until expended, and $600,000,000 shall be made available on October 1, 1991, and shall remain available until expended: *Provided*, That projects selected pursuant to a separate general request for proposals issued pursuant to each of these appropriations shall demonstrate technologies capable of replacing, retrofitting or repowering existing facilities and shall be subject to all provisos contained under this head in Public Laws 99-190, 100-202, and 100-446 as amended by this Act: *Provided further*, That the general request for proposals using funds becoming available on October 1, 1990, under this paragraph shall be issued no later than June 1, 1990, and projects resulting from such a solicitation must be selected no later than February 1, 1991: *Provided further*, That the general request for proposals using funds becoming available on October 1, 1991, under this paragraph shall be issued no later than September 1, 1991, and projects resulting from such a solicitation must be selected no later than May 1, 1992.

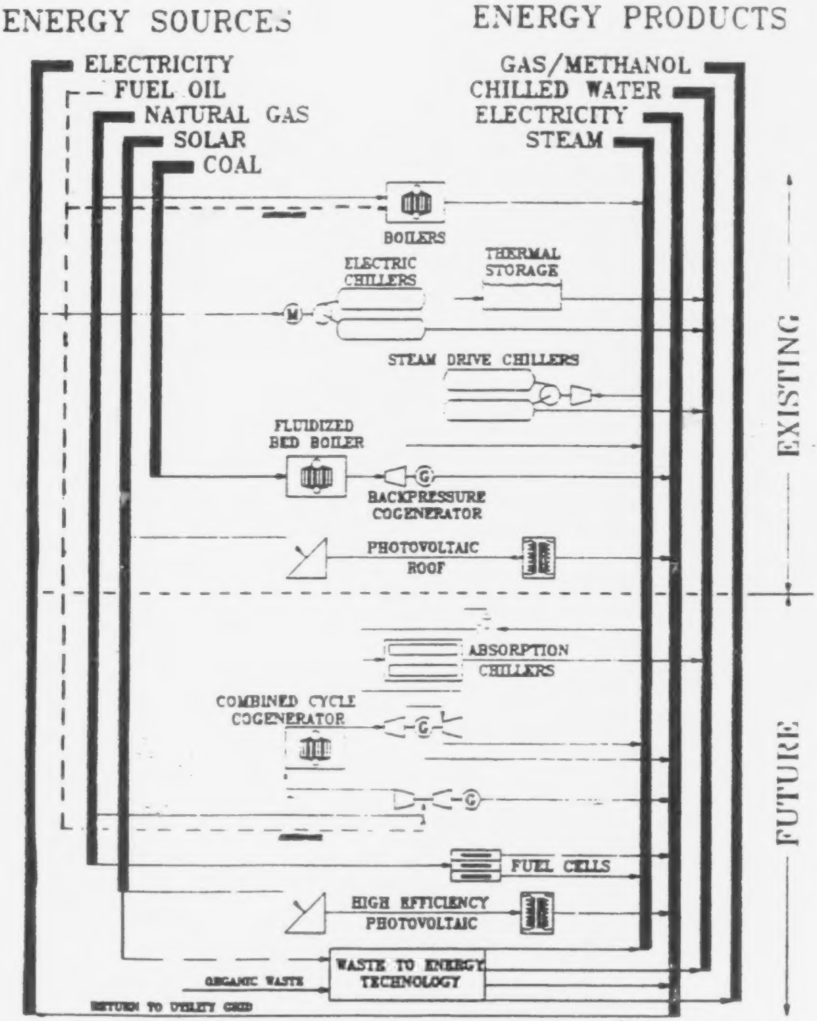
[The first paragraph under this head in Public Law 100-446 is amended by striking $575,000,000 shall be made available on October 1, 1989" and inserting "$450,000,000 shall be available on October 1, 1989, and shall remain available until expended, and $125,000,000 shall be made available on October 1, 1990": *Provided*, That these actions are taken pursuant to section 202(b)(1) of Public Law 100-119(2U.S.C. 909).]

We would like to ask for the committee's support in this endeavor. In particular we seek assitance with the planning phase of the first part of the program. We thank the committee for its long standing tradition of encouraging worthwhile and successful energy and water projects. On behalf of our president, Rev. Leo J. O'Donovan, S.J., we thank you for this opportunity to testify.

EXHIBIT A

GEORGETOWN UNIVERSITY
NATIONAL EXEMPLAR

INTEGRATED COMMUNITY ENERGY SYSTEM
MASTER UTILITIES/ENERGY PLAN


ENERGY SOURCES
ENERGY PRODUCTS
ELECTRICITY
FUEL OIL
NATURAL GAS
SOLAR
COAL
GAS/METHANOL
CHILLED WATER
ELECTRICITY
STEAM
BOILERS
ELECTRIC CHILLERS
THERMAL STORAGE
M
STEAM DRIVE CHILLERS
FLUIDIZED BED BOILER
G
BACKPRESSURE COGENERATOR
PHOTOVOLTAIC ROOF
EXISTING
ABSORPTION CHILLERS
COMBINED CYCLE COGENERATOR
G
G
FUEL CELLS
HIGH EFFICIENCY PHOTOVOLTAIC
WASTE TO ENERGY TECHNOLOGY
ORGANIC WASTE
RETURN TO UTILITY GRID
FUTURE

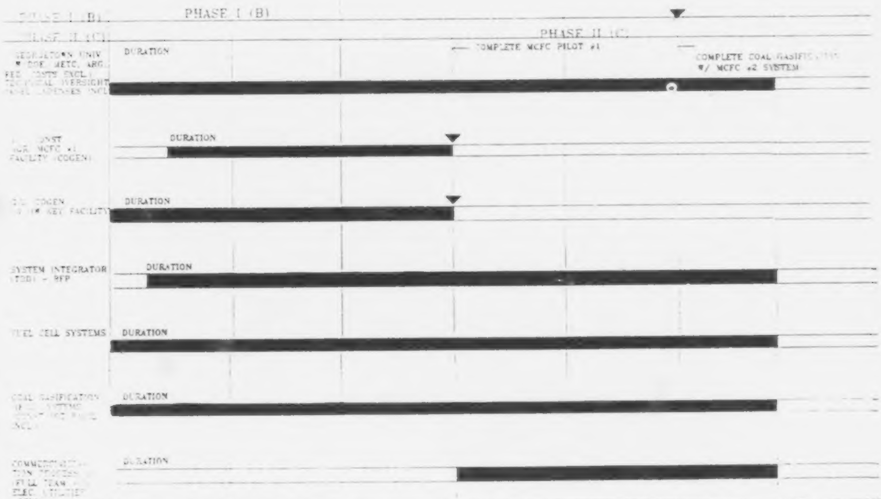
Energy Conversion Plan

EXHIBIT B

60 - 65 MW NATIONAL EXEMPLAR MOLTEN CARBONATE FUEL CELLS/ COAL GASIFICATION/NATURAL GAS COGENERATION COMMERCIALIZATION PROGRAM / SCHEDULE

@ COST 2480 - 2688 PER KW DEVELOPMENT ON 2 SITES

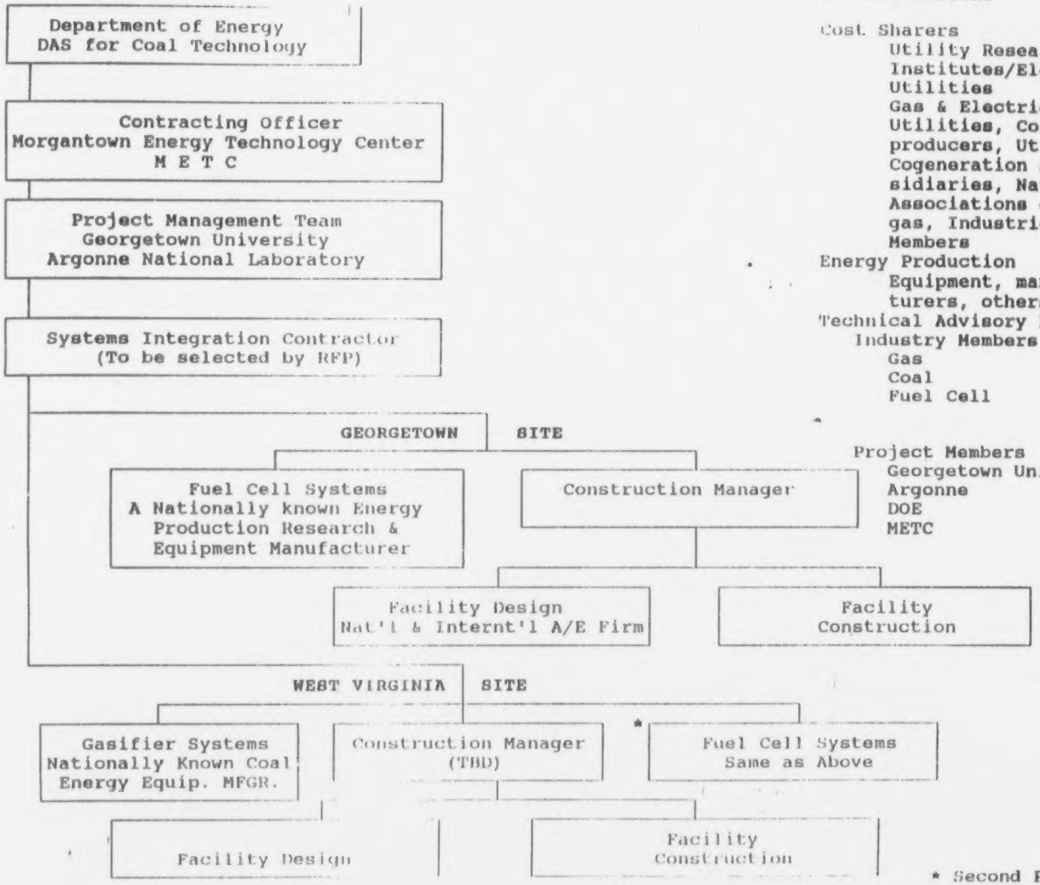
	OCT 90	OCT 91	OCT 92	OCT 93	OCT 94	OCT 95	
PHASE I (A)		PHASE I - A		▼ COMPLETE MCFC #1 PILOT/NAT. GAS		▼ COMPLETE COAL GASIF/MCFC #2 SYS	PROJ. %
YEAR	1	2	3	4	5	6	
OBJECTIVE MCFC #1	PROGRAM DETAILED PLAN, PROJ. MGT., PRELIM. DETAILED DESIGN, COSTS TECH.	FINAL DESIGN MCFC #1 BEGIN MFG.	FABRICATE, INSTALL MCFC#1 ON NAT. GAS	DEBUG, TEST MCFC #1 OPERATE PREPARE FOR COAL GAS CONTROLS	MONITOR/TEST REPORT	DEBUG, OPERATIONS TEST HOOK UP TEST MCFC #2, COAL GASIF. SYSTEM	
OBJECTIVES COAL GASIF. & MCFC #2	PROGRAM DETAILED PLAN, PROJ. MGT., PRELIM. DETAILED DESIGN, COSTS TECH.	FINAL DESIGN COAL GASIF. LONG LEAD PURCHASES	COMPLETE FINAL DESIGN, FABRICATE	REDESIGN/CORRECT FINAL DESIGN MCFC #2 CONSTRUCT W.VA COAL GASIFIER, MARKETING	MFG/INSTALL, TEST, MCFC #2 CONSTRUCT COAL GASIF. & TEST, INTEGRATE MARKETING	DEBUG/TEST MCFC #2-COAL GASIF. SYSTEM	



	1	2	3	4	5	6	
SUB - TOTALS							100%
COST SHARE SCHEDULE @ 50.6% GU/PRIVATE / 49.4% FEDERAL							
G.U.							50.6%
WEST VA. SITE							0%
COAL GASIF MFGR							0%
FUEL CELL MFGR							0%
ELEC UTIL RESCH, ELEC UTIL, ELEC/GAS UTIL, COAL PROD'Rs, COAL EQUIP MFGRs, NAT'L ASSOCs FUEL RESCH/USERS, PUB UTIL, ETC.							24.1% OF GU 50.6%
FED. SHARE							49.4%
TOTALS							100%

EXHIBIT C

PROJECT EXECUTION


Department of Energy
DAS for Coal Technology
Contracting Officer
Morgantown Energy Technology Center
M E T C
Project Management Team
Georgetown University
Argonne National Laboratory
Systems Integration Contractor
(To be selected by RFP)
GEORGETOWN SITE
Fuel Cell Systems
A Nationally known Energy
Production Research &
Equipment Manufacturer
Construction Manager
Facility Design
Nat'l & Internt'l A/E Firm
Facility
Construction
WEST VIRGINIA SITE
Gasifier Systems
Nationally Known Coal
Energy Equip. MFGR.
Construction Manager
(TBD)
*
Fuel Cell Systems
Same as Above
Facility Design
Facility
Construction

PROJECT SUPPORT

Cost Sharers
    Utility Research Institutes/Electric Utilities
    Gas & Electric Utilities, Coal producers, Utility Cogeneration subsidiaries, National Associations of coal, gas, Industries Members
Energy Production
    Equipment, manufacturers, others
Technical Advisory Panel
  Industry Members
    Gas
    Coal
    Fuel Cell

Project Members
    Georgetown University
    Argonne
    DOE
    METC

* Second Phase

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/CONSERVATION—WEATHERIZATION

WITNESS

KATHERINE A. KREITER, WASHINGTON STATE DEPARTMENT OF COMMUNITY DEVELOPMENT, HOUSING DIVISION

Mr. DICKS. Katherine A. Kreiter from the Washington State Department of Community Development and Housing Division. We're very pleased to have you here, Katherine.

Ms. KREITER. Thank you.

Mr. DICKS. We'll put your whole statement in the record, and you can proceed for five minutes.

Ms. KREITER. My name is Kathy Kreiter. I am with the housing division of the Department of Community Development. I have responsibility for the low-income weatherization program.

I am testifying on behalf of NASCSP, which is the National Association of State Community Service Programs, and the State of Washington.

Mr. DICKS. Good.

Ms. KREITER. Weatherization provides a long-term solution to the problem of high energy costs for low-income households. It provides low-income people with service which reduces fuel consumption, saves energy, and lowers the energy bills, and helps maintain affordable housing. It is also a program which supports the economy by promoting the growth of small business contractors.

Since 1977, approximately two million households nationwide have received weatherization through the Department of Energy program. We at the State level are very proud of our accomplishments, but there are still 19 million eligible households.

Mr. DICKS. Nationwide?

Ms. KREITER. Nationwide. In Washington, we still have 170,000 households. Seventy-five percent of those eligible are still on waiting lists which, in some areas, are over five years long.

The benefits of weatherization are many and results from energy savings, increased comfort, and lower fuel bills for low-income households, many who walk the line between paying for housing, food, and medical needs, among other costs, and being homeless. It helps the low-income on the road to self-sufficiency.

It also stabilizes and preserves rapidly-diminishing low-income housing. For low-income seniors, this may allow them to maintain their dignity and stay in their homes. It continues to create a residential conservation industry. In Washington, 26 agencies deliver services Statewide. Over 700 jobs are created through weatherization programs.

Mr. DICKS. Is there good coordination?

Ms. KREITER. It is really good coordination.

Mr. DICKS. Good.

Ms. KREITER. It lowers carbon dioxide emissions, and it leverages other local dollars. Many states are leveraging DOE dollars against utility dollars. In Washington, we leverage about $3 million annually from various utilities. It reduces the need to acquire costly new energy supplies and reduces our dependence on foreign oil.

In recent years, the Department of Energy appropriation has been $161 million and supplemented with LIHEAP, which is low-income home energy assistance program, and oil overcharge dollars.

As LIHEAP has been cut, weatherization has suffered disproportionately because states have decreased or eliminated weatherization from LIHEAP to maintain their fuel assistance programs.

As you have heard before, the oil overcharge dollars are diminishing quickly. In the next few years, virtually every weatherization program will be facing major cutbacks. It is going to hit Washington State in 1991.

NASCSP proposes an appropriation of $350 million each year for the next three years. We didn't come to this arbitrarily. With the weatherization program facing withdrawal of financial support from LIHEAP and oil overcharge, we estimate that there is going to be a 43 percent cut overall in weatherization. Right now we are operating at about a $500 million level nationwide.

It affects our ability to leverage other dollars. We estimate in Washington we will have a 33 percent cut in the program if the current appropriation of $161 million stays constant. That is a loss of $18 million to the local economy which is a 38 percent loss in the economically-stagnant areas outside of the Puget Sound corridor.

The good sense and logic behind weatherization is that it is even more sound today than it was conceived over a decade ago. Weatherization funds are an investment in housing, comfort, and financial stability of low-income Americans, and the well being of the environment and the energy future of the Nation.

Thank you.

Mr. Dicks. That's an excellent presentation. We look forward to working on it. I'm glad to see that you are working with the local utilities. I know, for example, that Tacoma City Light has been up in front on this. When you think about it, you know, under our regional act out there, the Bonneville Power Administration can use this. There is a way that they can help finance this as a low-cost alternative to new energy sources as we were talking about earlier. We've got to keep pushing them to do that.

Ms. Kreiter. Low-income weatherization ranks very low in the least cost effective plan. By being able to match it with the Federal dollars, we push it up in the ratings which has helped Bonneville be able to give us more money. If you don't have the Federal dollars, it falls down.

Mr. Dicks. Does the State of Washington put any money into this program?

Ms. Kreiter. No, it doesn't.

Mr. Dicks. We've got to talk to them about that.

Ms. Kreiter. We would appreciate that, too.

Mr. Dicks. All right. Thank you.

[The prepared statement of Katherine Kreiter follows:]

Testimony
of
Katherine A. Kreiter

Washington State Department of Community Development
Housing Division

On Behalf of

The National Association for State Community Service Programs

at the

Hearing on Appropriations
for
Interior and Related Agencies

Before the

Subcommittee on the Interior
of the
Appropriations Committee

March 8, 1990

My name is Katherine Kreiter. I am the manager of the Housing Improvements and Preservation Unit for the Washington State Department of Community Development. In this position, I have responsibility for all state, federal and oil overcharge weatherization assistance programs. I would like to thank Chairman Dicks and the other members of the Interior Subcommittee of the Appropriations Committee for the opportunity to testify on the appropriation for the Department of Energy's Low Income Weatherization Assistance Program. I am offering this testimony on behalf of the National Association for State Community Services Programs (NASCSP).

Weatherization provides a long-term solution to the problem of high energy costs for low-income households. It provides a service to low-income people which reduces fuel consumption, saves energy, and lowers energy bills and helps maintain affordable housing. It is also a program which has supported the economy by promoting the growth of small business contractors.

Weatherization:

> Results in substantial energy savings and therefore reduces monthly fuel bills for low-income families, particularly the elderly and the handicapped, who walk the line between paying for housing, food, and/or medical needs--among other costs, and being homeless;
>
> Stabilizes and preserves low-income housing stock, a rapidly diminishing product, by insulating walls and attics, replacing windows, and completing furnace modifications - all measures which remain with a home well into the future;
>
> Continues to create a residential conservation industry in the labor force whose expertise and technical know-how is substantial; and
>
> Lowers CO^2 emissions due to reduced energy consumption and, therefore,
> a) diminishes the need for foreign energy resources and b) helps to relieve global warming. (The energy savings estimated for the weatherization program of the last year alone prevented 1.5 billion pounds of CO^2 from being emitted into the atmosphere).

From its inception, the Department of Energy Weatherization Assistance Program has been challenged by uncertain funding and an inconsistent vision concerning its principal aims. In spite of these hurdles, the weatherization program has matured and achieved an outstanding record of accomplishment and increased effectiveness over the last twelve years.

Since 1977, approximately 2 million households have received weatherization assistance through the DOE program. While this is certainly a significant number, 1980 census data

data indicates about 19 million households are eligible for services. In Washington State, over 170,000 households, or 75% of those eligible, are still in need of weatherization services. Waiting lists in some areas are over five years long.

In every state in the union, there are professionally managed weatherization offices which administer the program through an extensive network of over 1,500 subgrantee agencies. In Washington State, 26 agencies deliver services statewide, working with in-house crews, private subcontractors or some combination. For every $1 spent on weatherization, over $3 is generated in the local community. For every $1 million spent, 69 jobs are created.

The weatherization program also leverages other local dollars. In Washington State, DOE weatherization dollars combine with utility dollars to offer complete cost-effective weatherization services. Over $3 million utility dollars are spent annually. Without the DOE funds, agencies would weatherize fewer homes, and those homes would not receive total weatherization services.

In recent years, DOE appropriations of only $161 million have been supplemented by two other resources: up to 15 percent of the Low-Income Home Energy Assistance Program (LIHEAP) grants; and oil overcharge (PVE) monies. As LIHEAP continues to be cut, weatherization suffers disproportionately, as many states have decreased or eliminated the LIHEAP weatherization component in an attempt to maintain the level of fuel assistance payments. In addition, oil overcharge funds for weatherization are diminishing quickly. In consequence, over the next few years, virtually every weatherization program in the nation is facing the prospect of very severe cutbacks.

NASCSP proposes that the appropriation level for DOE Weatherization Assistance Program for each of the next three years be $350 million. We did not reach this figure arbitrarily. As noted previously, the weatherization program is facing a withdrawal of financial support from two of its most abundant sources. During the past few years, when the weatherization program had access to LIHEAP and oil overcharge funds, we estimate that we were, in fact, spending roughly $500 million on the national level. Contrary to previous reports, states do not still have oil overcharge dollars to fund weatherization programs.

A recent NASCSP survey shows that states will take a 43% overall weatherization funding cut in 1991, assuming that DOE stays at $161 million appropriation. This cut mainly reflects the loss of available oil overcharge dollars. Such a cut will affect states' abilities to leverage non-federal weatherization funds. We estimate that in Washington state, we could experience a 33% overall cut in weatherization funding. Using the economic factor, that equates to a loss of $18 million in the economy, with 38% reduction in the economically stagnant rural areas outside the Puget Sound corridor. Reduced funding also threatens the jobs of those in the local agencies providing the weatherization services and their subcontractors.

The good sense and logic behind the weatherization program is even more sound today than when it was conceived over a decade ago. Those years in between have built a dynamic, committed network of people who believe deeply in the validity of the program's purpose and who feel a responsibility to deliver on the promise of that purpose. Indeed, the energy and commitment of the program's human resources may be its greatest asset. From it comes the innovation and dedication that has brought the Weatherization Assistance Program to the level of competence and professional integrity in evidence today.

Funds dedicated to the Weatherization Assistance Program are no mere expenditures of public dollars for tabulation on a federal financial report. They are an investment in the housing, comfort and financial stability of low-income Americans; in the well-being of the environment; and in the energy future of the Nation.

Thank you for this opportunity.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/CONSERVATION—STEEL INITIATIVE

WITNESS

WILLIAM E. DENNIS, AMERICAN IRON AND STEEL INSTITUTE

Mr. DICKS. Next will be William E. Dennis, American Iron and Steel Institute. Mr. Dennis?

Mr. DENNIS. Good morning.

Mr. DICKS. We'll put your statement in the record, and you can proceed for five minutes.

Mr. DENNIS. Thank you, sir. Despite a few minor delays, the project that we're operating for the development of direct steel making under the three-year cooperative agreement, which you reached with the Department of Energy in May of last year, is going extremely well. The research programs at Carnegie-Mellon and MIT have produced some very valuable information. We are also getting results now on the full-scale trials we're carrying out at Dofasco. On the pilot plant itself, construction is nearing completion, and we hope to initiate trials on the smelter by mid year.

To continue this project, we will be requesting DOE to provide $7.5 million for fiscal year 1991. This should enable us to properly define the process technology with on-line pre-reduction of the iron ore pellets. Using pellets which are peculiar to North American steelmaking, we believe it is going to give us a leg up on the overseas competition, particularly the Japanese. They are spending three times as much as we are in terms of engineers, in terms of the pilot funds, and in terms of their government funding. They have landed themselves with the very difficult problem of putting the fluidized-bed on top of their smelter. We are fairly confident that we can get there at least as soon as they will and hopefully quicker.

We have put a team together to come up with another proposal under the metals initiative which we regard as very, very important and comes under the heading of intelligent processing. We have had a team working since January, and we hope to deliver a proposal to NIST and to DOE by November of this year. What we expect we'll be looking for is $2 million from DOE, $2 million from NIST, and cost-sharing from the industry, another $1.7 million, for a total program of roughly $6 million.

We conducted a workshop at NIST. I find it difficult not to call it the National Bureau of Standards. I did it for so long.

Mr. DICKS. Me, too. We change these names every—I can't remember who is who.

Mr. DENNIS. They nearly changed it to NIX, but at the last minute, they—anyhow, we conducted a workshop up there, with all the Government people, the university people, customers, and so on, and everybody focused in on this program, this so-called intelligent processing. The simplest way to explain it is that we want to take all the fruits of the computer revolution, censors, artificial intelligence, all of those things, and put them to work in the steel plant so that we can bring about the environmentally-benign efficient plant that we need for the future.

We hope you will support that.

Mr. DICKS. We appreciate that. That's an excellent statement. The cost sharing part of this is something that we feel very strongly about and hope we can maintain. We appreciate your being here, and that was an excellent presentation.

Mr. DENNIS. I like the cost sharing.

Mr. DICKS. I'm going to turn the Chair over to Congressman Atkins.

[The prepared statement of William Dennis follows:]

American Iron and Steel Institute

page 1 of 2

Testimony on Behalf
# of the
American Iron and Steel Institute

Before the
Subcommittee on Interior and Related Agencies
of the

Committee on Appropriations
U.S. HOUSE OF REPRESENTATIVES

March 8, 1990

by
William E. Dennis
Vice President
Manufacturing and Technology

Testimony of William E. Dennis, Vice President, Manufacturing and Technology, American Iron and Steel Institute - Before Subcommittee on Interior and Related Agencies - March 8, 1990 page 2 of 2

Good Morning:

I am William E. Dennis, Vice President, Manufacturing and Technology, of the American Iron and Steel Institute, speaking on behalf of the 52 AISI member companies who account for approximately 80 percent of the raw steel produced in the United States. The purpose of appearing before you today is to summarize the fiscal year,'91 funding requirement of $9.5 million for two projects under the Department of Energy's Metals Initiative.

Despite some minor delays, the project for the development of direct steelmaking under the three-year cooperative agreement which we entered into with the Department of Energy in May 1989 is going extremely well. The research programs at Carnegie-Mellon University and at Massachusetts Institute of Technology have already produced valuable information. Work being conducted on the full-scale oxygen steelmaking plant at Dofasco is also producing results which will guide our experiments on the pilot plant. On the pilot plant itself, construction is nearing completion and we hope to initiate trials on the smelter by mid year. To continue this project, we will be requesting DOE to provide $7.5 million for FY 1991. This will enable us properly to define the process technology with on-line pre-reduction of the iron ore pellets. Although our competitors around the world are conducting programs involving some of the same technology, we have a significant advantage by virtue of a simpler system which uses iron ore pellets and avoids the need for fluidized-bed technology. However, it should be noted that we are aiming to produce steel, whereas the other programs are aimed at producing iron which then has to be further processed into steel.

Since testifying before you last year, there have been two additional changes in our plans relating to the Metals Initiative. First, in respect to strip casting, we have become aware of several new developments and possibilities for radical innovation. This leads us to believe that, at this point in time, it would be inappropriate to submit an industry proposal through AISI. However, a collaborative investigation is being undertaken which may well lead to a request for funding in the future.

By way of contrast, in respect to Intelligent Processing, in 1989, through focussed interaction between steel suppliers, users, universities and government laboratories, we concluded that the time has now arrived for a collaborative industry program. Since January, we have had a team of industry experts working towards a proposal which can be delivered to DOE and to the National Institute of Standards and Technology (NIST) by November 1990. This proposal will include the research and development projects required to move toward intelligent process control covering the total conversion process from ore to final product. Assuming 30% industry cost-share, we will probably be requesting about $2 million from DOE and about $2 million from NIST, for a total of $5.7 million for FY 1991.

In summary, we respectfully urge you to continue funding the Direct Steelmaking Project and provide the necessary funds to initiate a project on intelligent processing.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—ENERGY RESEARCH

WITNESS

LEE WALLACE, DIRECTOR/COUNSEL, REGULATORY AND LEGISLATIVE AFFAIRS, GAS RESEARCH INSTITUTE

Mr. ATKINS [acting chairman]. Mr. Lee Wallace?

Mr. WALLACE. Good morning, Mr. Chairman.

Mr. ATKINS. Good morning.

Mr. WALLACE. I'm representing the Gas Research Institute. I appreciate the opportunity to present GRI's fiscal year 1991 budget recommendations for the gas-related research in DOE's fossil and energy conservation programs.

In developing these recommendations, GRI gave top priority to two important national goals. First, solving our environmental problems and second, reducing the U.S. dependence on imported oil.

GRI and the gas industry are recommending about $118 million for gas research in DOE's budget for next year to continue the essential programs that Congress has previously approved.

Second to this recommendation is that GRI is planning to commit $121 million to research in the same programs. GRI strongly recommends that the subcommittee consider and endorse the concept of cooperative R&D ventures. GRI is ready to co-fund cooperative R&D ventures with the Department of Energy.

Under the cooperative R&D venture concept, private parties provide at least 50 percent of the funding. The Government participates in determining the project scope of work, performance schedule, and cost parameters. The Government then monitors and advises on the project, but private partners take over the day-to-day operation and management of the project.

DOE has made two important policy statements representing your change in the Administration's policy which we believe support the concept of cooperative R&D ventures. First, in January, DOE announced major new initiatives to develop a comprehensive natural gas R&D plan. In announcing the research plan, Deputy Secretary Moore stated, "We need to pursue coordinated research programs of industry. We are shifting the emphasis more to near-term applied research."

Secondly, DOE noted in its budget request to you this year the importance it places on technology transfer. The earlier the U.S. industry is involved, and the more directly that the research agenda is guided by the companies' own economic self-interest, the more effective the transfer is likely to be.

Cooperative R&D ventures are good for the Federal Government because they transfer the technology effectively to a willing user and because they result in the best return for research dollars.

The gas industry is currently providing well over 50 percent of the funding to one of the first Federal/private cooperative R&D ventures on secondary gas recovery. The purpose of this cooperative R&D venture is to develop and test technologies with near-term potential for additional gas recover from the known fields.

DOE has estimated that about 120 trillion cubic feet of natural gas could be recoverable with successful technology transfer from R&D in this area.

There are many natural gas technology areas that GRI proposed in our testimony for cooperative venture projects with DOE. I will mention briefly just three.

First of all, natural gas in transportation. The clean-burning characteristics of gas contribute to the solution of the problem in urban nonattainment areas. Developing a new advanced, heavy-duty gas engine is a prime candidate for a cooperative R&D venture. DOE funding of $3 million is required in fiscal year 1991 to initiate this.

Secondly, an eastern devonian shales. Current information indicates that the gas in place in the eastern devonian shales is approximately 2,000 Tcf. However, large uncertainty exists with regard to the ability to recover this. Cooperative DOE/GRI effort, similar to the current cooperative R&D venture on secondary gas recoveries, would be appropriate in this area. DOE funding of $3 million is required to initiative the effort.

The third example would be in western tight sands. Significant amounts of potentially-recoverable natural gas exists in low-permeability sand stones throughout the United States in sedimentary basis. Advanced stimulation production technology is needed for production from lenticular formation. This could provide an additional 200 Tcf of cost-competitive gas for the United States. GRI recommends another cooperative R&D venture here, requiring $3 million next year.

In summary, GRI is recommending a total funding gas-related research program in DOE's fossil energy and conservation offices totaling $118.1 million. This recommendation is primarily for the maintenance of ongoing gas-related research programs which Congress has supported in the past. However, we have included some increases over past years' recommendations for areas that address environmental issues, such as the fuel cell programs and the natural gas vehicles.

The subcommittee should note that GRI is going to be funding $121.5 million in near-term research in these same program areas. This joint DOE/gas industry program is required if the U.S. is to substitute abundant domestic gas or imported oil and to mitigate environmental concerns.

I'll be happy to answer any questions. This will conclude my testimony.

Mr. Atkins. Can you tell me where we stand presently in terms of a transfer of the technology in the secondary gas recovery? You're just about closed out on the research phase. There is a little bit more to be done, but that is——

Mr. Wallace. Next year should be the third year, yes. We'll be transferring after the——

Mr. Atkins. That's a pretty modest program for next year, as I understand it.

Mr. Wallace. I think we needed $3 million for next year.

Mr. Atkins. Right.

Mr. Wallace. It is a very successful program because we are involving producers in it, and producers are the ones who are going to get the technology. They are quite excited about it. It has been a very cost-effective program.

Mr. ATKINS. Has anything happened prior to, or up to this point, based on the first two years' experience?

Mr. WALLACE. I'd rather give you a full statement in the record about that. We've had a good deal of transfer technology and a good deal of experience with producers. I would rather not comment.

Mr. ATKINS. Last year you said you'd only need half a million dollars for the third-year closeout on the project. The $3 million represents a substantial increase. Could you——

Mr. WALLACE. DOE was supposed to be—our total three-year program with DOE was $8.5 million. They withheld some. We have $5 million so far. This was the original agreement that we signed back in 1988.

Mr. ATKINS. But in terms of what was expected out of this committee, it was only half a million, it is my understanding.

Could you——

Mr. WALLACE. I can provide some further——

Mr. ATKINS. If you could provide an answer for that for the record, I'd appreciate it.

Mr. WALLACE. Okay.

Mr. ATKINS. Okay. Thank you.

[The prepared statement of Lee Wallace follows:]

1331 Pennsylvania Avenue, N.W.
Suite 730 North
Washington, D.C. 20004-1703
202/662-8989

A. LEE WALLACE
Director/Counsel
Regulatory and Legislative Affairs

March 16, 1990

The Honorable Sidney R. Yates, Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
U. S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

I appreciate the opportunity of testifying before your Subcommittee on March 8 regarding gas-related research in the Department of Energy's Fossil Energy and Conservation budgets. Your continued support of the gas industry in this regard is appreciated.

I would like to respond further to some questions which were posed by Mr. Atkins, who was chairing the hearings at the time I testified. He had several questions regarding our cooperative R&D project in Secondary Gas Recovery which falls under the Unconventional Natural Gas Recovery program. Due to an accounting error, we made an incorrect request for $3 million to complete this project. The total DOE share of this $22.25 million project is $8.5 million. Funding to date includes the following appropriations for the DOE share:

	FY 1988	$ 2.500 million
	FY 1989	2.500 million
	FY 1990	2.974 million
TOTAL		$ 7.974 million

A total of $.526 million is needed in FY 1991 for DOE to complete its contribution to the project. The remainder of the $22.25 million is being funded by GRI ($9.75 million), the State of Texas ($1.0 million) and an additional "in kind" contribution ($3.0 million) from various gas producers and service companies.

Gas Research Institute, 8600 West Bryn Mawr Avenue, Chicago, Illinois 60631 312/399-8100

A second question raised concerning this project was what have been the results of our efforts to date. While the project is not far along information gathered so far in Phase I regarding sandstones in the Texas Gulf have been applied in identifying the most potentially productive fields in carbonates and sandstones in both East Texas and West Texas. This information has resulted from cutting cores and doing geologic analyses, compiling information from the Texas Gas Atlas (developed with GRI funding), and analyzing large volumes of data generated. When both phases are completed, the end result will be a system of identifying the best fields and wells for the highest infield yield. Not to be overlooked or underestimated, is the fact that the extensive efforts which have been devoted to organizing this project have also created an excellent technology transfer mechanism. Often this task is left to later in the project or even the very end. Now all parties, including DOE, can be assured that successful results will be quickly utilized by the industry.

I hope I have been able to clarify the status of the Secondary Gas Recovery program. If you have further questions, please feel free to contact me. Again, thank you for allowing us to testify and for your continued support.

Sincerely,

A. Lee Wallace

A. Lee Wallace
Director/Counsel
Regulatory and Legislative Affairs

cc: The Honorable Chester G. Atkins
Bob Kripowicz

STATEMENT OF A. LEE WALLACE
DIRECTOR/COUNSEL, REGULATORY AND LEGISLATIVE AFFAIRS
GAS RESEARCH INSTITUTE
BEFORE THE SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
HOUSE COMMITTEE ON APPROPRIATIONS
MARCH 8, 1990

INTRODUCTION

I appreciate the opportunity to appear before you today to present Gas Research Institute's (GRI) FY 1991 budget recommendations for gas-related research in the Department of Energy's (DOE) Fossil Energy and Conservation programs. In developing these recommendations, GRI gave top priority to the need to develop our extensive domestic gas resources to make a significant contribution in solving our environmental problems and reducing U.S. dependence on imported oil. Therefore, GRI and the gas industry recommend $118.1 million for gas research in the DOE FY 1991 budget to continue essential programs Congress has previously approved. Central to this recommendation is that GRI is planning to commit $121.5 million to research in the same programs. GRI is requesting DOE's gas-related research budget match the gas industry's R&D program budget. (See Exhibit 1).

GRI is an independent, not-for-profit research organization that manages and finances a cooperative R&D program for the benefit of its 314 natural gas company members and their customers. DOE's budget is a major factor influencing the GRI program since GRI cofunds about $30 million of its research projects with DOE. Therefore, even though GRI is not a government contractor, Congressional action on the proposed DOE budget has a direct impact on GRI's program.

DOE ENERGY POLICY STATEMENTS VS. BUDGET REALITY

In January, DOE announced a major new initiative to develop a comprehensive Natural Gas R&D Plan to allow the U.S. to develop its natural gas reserve potential. In announcing the research plan, Deputy Secretary Moore stated, "We need to pursue a coordinated research program with industry. . . we are shifting the emphasis more to near-term, applied research." GRI strongly supports the DOE initiative.

A recent DOE study An Assessment of the Natural Gas Resource Base of the United States (May 1988) supports the new DOE initiative. The results of the study (see Exhibit 2) show that over 1000 Tcf of gas is technically recoverable with approximately 600 Tcf recoverable at prices of $3/Mcf by using advanced technology. Included in this recoverable gas is 146 Tcf in unconventional reservoirs. However, the DOE FY 1991 budget request is inconsistent with the new DOE initiative and the gas potential. The total budget request for gas-related research in DOE's Fossil and Conservation programs is only $55.4 million, a reduction of 50% from the $108.3 million appropriated last fall. The request for unconventional natural gas R&D is $13.7 million, less than 2% of the proposed Fossil budget including funding for the Clean Coal Program. The budget does not support the policy of increasing gas R&D in recognition of its potential contribution. (See Exhibit 3.)

PROPOSED JOINT DOE/GAS INDUSTRY GAS RESEARCH PROGRAM

An expanded joint gas R&D effort between the gas industry and DOE is needed. To fund this joint effort, GRI recommends $118.1 million for DOE's gas-related research budget in Fossil Energy and Conservation. GRI encourages greater use of cooperative R&D ventures to conduct much of this research especially in CNG vehicles, and unconventional natural gas.

RECOMMENDED GAS POLICY INITIATIVE: EXPAND COOPERATIVE R&D VENTURE CONCEPT

DOE stated in its FY 1991 Congressional Budget Request that "one of the primary goals of all the applied research in Fossil Energy is to effectively transfer technology from Federal and university laboratories to the U.S. private industry. The earlier the U.S. industry and/or their trade and consortia representatives are involved, and the more directly that the research agenda is guided by the companies' own economic self-interest, the more effective the transfer is likely to be."

GRI endorses this approach and is ready to accept the challenge to cofund cooperative R&D ventures with DOE. Under the cooperative R&D venture concept, once the project scope of work, performance schedule, and cost parameters have been negotiated, the government relinquishes day-to-day management control in exchange for a dominant share of funding from the private partners.

DOE would monitor and advise rather than manage the project and would reenter the decisionmaking process only in the event of changes to the program scope, schedule, or funding. The private partner remains in control of direct project management. Through industry's willingness to invest its own resources (at least 50% of the project funding), the government is paying less than half of the cost of a project that it judges to be in the public interest.

Private partners are currently providing well over 50% of the funding to one of the first federal/private cooperative R&D ventures under a pilot program established by DOE. In September 1988, GRI, DOE, and the Bureau of Economic Geology (BEG) at the University of Texas at Austin agreed to cofund a cooperative R&D venture on extended reserve growth in gas reservoirs, called secondary gas recovery. The purpose of the three-year, $22.25 million project is to develop and test technologies and methodologies with near-term potential for maximizing additional gas recovery from known fields. GRI will contribute $9.75 million in cash and related research efforts. DOE will contribute $8.50 million in cash, another $1 million in cash will come from the State of Texas, and an additional $3 million of "in kind" contributions will be sought from gas producers and service companies. Nationwide impact could be significant. DOE has estimated that about 120 Tcf of natural gas is recoverable by extended reserve growth in nonassociated gas reservoirs in the lower 48 states.

Future Cooperative Ventures

Other challenges and opportunities in terms of current natural gas technology needs that GRI would propose for a cooperative venture project with DOE are listed below.

1. Natural Gas in Transportation. The clean-burning characteristics of gas can contribute to the solution of the problem in urban nonattainment areas. GRI is working with engine manufacturers to modify existing transit bus motors to allow the use of natural gas and to develop advanced gas technology for use in dedicated natural gas engines. GRI proposes a cooperative R&D venture between DOE, an equipment manufacturer, and GRI for developing a new advanced heavy-duty gas engine. DOE funding of $3 million is required in FY 1991 to initiate this joint venture.

2. Eastern Devonian Shales. Current information indicates that the gas-in-place in eastern Devonian shales is approximately 2000 Tcf; however, large uncertainty exists regarding how much of that resource may be recoverable. A cooperative DOE/GRI effort to enhance gas recovery from shales in a program similar to the existing cooperative R&D venture could significantly improve our ability to produce this resource. DOE funding of $3 million is required to initiate this effort in FY 1991.

3. Western Tight Sands. Significant amounts of potentially recoverable natural gas exist in low-permeability sandstone formations located in sedimentary basins throughout the U.S. The total amount of technically recoverable gas from tight sands could exceed 500 Tcf. Advanced technologies and practices applicable to tight gas sands could provide an additional 200 Tcf of cost-competitive gas over what is recoverable with present state-of-the-art technology. GRI recommends a cooperative R&D venture focusing on the development of stimulation production technologies for the lenticular formations, with $3 million in the DOE budget for FY 1991.

4. Water-Drive Reservoirs. An estimated 500 Tcf of technically recoverable natural gas (50 Tcf of which is estimated to economically recoverable) exists in water-drive reservoirs in the form of trapped gas. The gas becomes trapped as a result of the encroachment of water into production wells. Once high levels of water production are reached, traditional practice is to plug and abandon the affected gas wells and ultimately the gas field. The past recovery efficiencies for the prolific water-drive gas reservoirs along the Texas-Louisiana Gulf Coast are 50% or less. A cooperative R&D venture requiring $2 million of DOE funds in FY 1991 would develop the technology to produce this resource.

RECOMMENDED DOE FY 1991 GAS-RELATED RESEARCH

With one important exception, GRI and the gas industry have requested maintenance of ongoing gas-related research programs supported by Congress in the past. But as public attention focuses on environmental issues such as acid rain and global warming, it is time to increase R&D in areas that address environmental issues. Therefore, some increase over past years' recommendations is shown in the gas industry's recommendation in fuel cells and natural gas vehicles.

Fossil Energy--Unconventional Natural Gas

Eastern Devonian Shales	FY 1989 Appropriation	FY 1990 Appropriation	FY 1991 Recommendation
	$3.1 million	$3.32 million	$3.0 million

The large eastern Devonian gas shales resource base (estimated 2000 Tcf) contains in the heart of the Appalachian Basin alone approximately 120 Tcf of gas-in-place in a drillable area of 22,000 square miles. GRI's program in eastern Devonian shales includes reservoir evaluation, recovery enhancement methods, and development of a resource well information data base. GRI's 1991 budget for Devonian shales is $5.5 million with an additional $3 million in industrial funding expected. GRI recommends a total of $3 million for DOE for a cooperative R&D venture focused on directional drilling applications.

Secondary Gas Recovery	FY 1989 Appropriation	FY 1990 Appropriation	FY 1991 Recommendation
	$2.5 million	$3.0 million	$5.0 million

A significant quantity of natural gas that requires minimal exploration and is in close proximity to gathering systems and pipelines is known to exist in currently producing and abandoned fields. These potential reserve additions consist of gas-in-place that was not identifiable or economically producible with state-of-the-art primary production practices. Approximately 70 Tcf is thought to be economically recoverable with the development of advanced technologies. A DOE/GRI cooperative R&D venture was started in 1988 to conduct field experiments on identifying and producing bypassed gas in undiscovered reservoirs in known fields. GRI and industry will contribute over 50% of the costs. DOE funding of $3 million is required in 1991 to continue this joint program as scheduled. GRI's 1990 budget for secondary recovery is $6.7 million. GRI also proposes that DOE establish a cooperative R&D venture in coproduction of gas in watered-out reservoirs. This R&D venture will require $2 million of DOE funds in FY 1991.

Western Tight Sands	FY 1989 Appropriation	FY 1990 Appropriation	FY 1991 Recommendation
	$3.3 million	$3.52 million	$5.0 million

Significant amounts of potentially recoverable natural gas exist in low-permeability sandstone formations located throughout the U.S. However, technical limitations and economic constraints prevent the widespread commercial use of these resources. It is estimated that the development of advanced technologies could provide an additional 200 Tcf of cost-competitive gas.

The blanket-type formations are more amenable to production in the near term because the geologic environments in which they exist are less complex than the environments associated with lenticular formations. Therefore, GRI has concentrated its efforts in the blanket-type formations with a 1991 budget of $11.3 million. In addition, GRI anticipates industry will contribute another $3.75 million. GRI recommends DOE commit a total of $5 million for research including $3 million for a cooperative R&D venture with industry.

Fossil Energy--Fuel Cells

	FY 1989 Appropriation	FY 1990 Appropriation	FY 1991 Recommendation
	$17.0 million	$30.1 million	$40.5 million

A fuel cell uses natural gas in an electrochemical process to produce electricity and heat. This is done with high overall energy efficiency, good reliability, low noise, and virtually no pollutants.

Advanced fuel cell technology offers three important operating benefits: (1) electrical efficiencies of 45% to 63%, (2) high temperature operation (1200°-2000°F) offering high-quality thermal energy, and (3) ability to use natural gas directly without extensive reformer equipment. Two types of advanced fuel cells appear promising: the solid oxide (ceramic) fuel cell (SOFC) and the carbonate fuel cell (CFC). SOFC technology is promising because of its potential for high-power-density cell stacks, its solid state construction which eliminates the liquid electrolyte, and its potential as a less expensive system than the carbonate type. Major R&D efforts requiring $6 million of DOE funding are needed for cell fabrication technology and durability before detailed SOFC system development can be undertaken.

Research on CFC technology is being conducted for use primarily on central-station electric generation. Although the development of CFCs has proceeded further than solid oxide systems, major development efforts are still needed in the cell stack area (power section) before the CFC can be commercialized. These efforts include activities that have long development times and represent major technological hurdles: electrode performance and durability, electrolyte management, corrosion, thermal cycling, integration of stack components, and improved fabrication technologies. DOE funding of $33 million is needed.

GRI's planned 1991 budget for fuel cell activity is $2.6 million with an additional $4 million from industrial partners. The gas industry recommends a DOE budget of $40.5 million for molten carbonate and solid oxide fuel cells and for a generic program in phosphoric acid fuel cells.

Conservation

Heat Pumps	FY 1989 Appropriation	FY 1990 Appropriation	FY 1991 Recommendation
	$5.8 million	**$6.2 million**	**$5.0 million**

For a typical cold-climate residence, the gas heat pump can provide both heating and cooling in a single unit using less energy than a conventional gas furnace would use for heating alone. Achievement of gas heat pump targets for life-cycle cost and payback requires substantial technical advancements, particularly in engine and/or advanced absorption technologies, to improve first cost, efficiency, life, and maintenance frequency. GRI's 1991 budget for heat pumps is $8.3 million with an additional $5.9 million expected from industrial partners. A DOE budget of $5 million is recommended.

Desiccant Cooling	FY 1989 Appropriation	FY 1990 Appropriation	FY 1991 Recommendation
	$1.3 million	*	**$3.0 million**

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*DOE FY 1990 desiccant funding was included in the heat pump budget.

High latent-load applications and air conditioning in high ambient humidity areas represent opportunities for desiccant-based dehumidification and cooling systems. Needed desiccant improvements include higher performance, reduced equipment size, and improved understanding of the capability of desiccants to remove airborne pollutants as well as moisture. GRI's 1991 budget for desiccant systems is $10 million with $2 million expected from industrial partners. A budget of $3 million is recommended for a GRI cooperative R&D venture with DOE to address advanced desiccant cooling systems.

Natural Gas Vehicles	FY 1989 Appropriation	FY 1990 Appropriation	FY 1991 Recommendation
	0	**$2.5 million**	**$10.6 million**

Funding is urgently needed for an alternative vehicle fuels program consisting of $5 million to demonstrate the operation of natural-gas-fueled trucks and $4 million for the comparative testing and demonstration of buses capable of running on natural gas and LP gas. GRI is developing a retrofit kit to demonstrate use of natural gas in two-stroke diesel engines, which make up about 95% of the heavy-duty public transit vehicles. GRI urges DOE to join in this demonstration through a $3 million cooperative R&D venture. It is recommended that DOE pick up the cost of the vehicle conversion and the compression stations. Testing should be done for 12 months in both northern and southern climates with six to ten heavy-duty vehicles in each station. A total budget of $10.6 million ($3 million of which is for a cooperative R&D venture) is recommended for DOE. GRI's 1991 budget for natural gas vehicle research is $5.1 million with an additional $10.4 million expected from industrial partners.

SUMMARY

GRI recommends funding gas-related research in DOE's Fossil Energy and Conservation Programs totaling $118.1 million. The Subcommittee should note GRI is funding $121.5 million of near-term research in these program areas. This joint DOE/gas industry research effort is required if the U.S. is to substitute abundant domestic gas for imported oil and to mitigate environmental concerns. This is sound national energy policy that Congress should implement. (See Exhibit 4.)

Exhibit 1
Gas-Related Research Recommendations for DOE FY 1991 Fossil Energy and Conservation Programs ($ Millions)

	FY 1991 Gas Industry Recommendation for DOE's Budget	GRI's Planned Budget 1991*
Fossil Energy		
ARTD (Gas-Related)	$ 6.0	$ 4.22
Fuel Cells (Gas-Related)	40.5	3.75
Coal Gasification	9.0	1.55
Combustion Systems Emission Control	9.0	10.70
Heat Engines (Gas-Fueled)	2.9	5.50
Unconventional Natural Gas	23.3	35.94**
Fossil Energy Subtotal	**$90.7**	**$61.66**
Conservation R&D		
Heat Pumps & Desiccant Cooling	$ 8.0	$22.18
ECUT	1.0	12.88
Indoor Air Quality/Bldg. Systems Research	N/A	4.08
Industrial Cogeneration	7.8	15.60
Natural Gas Vehicles	10.6	5.10
Conservation Subtotal	**$27.4**	**$59.84**
Total--Fossil Energy & Conservation R&D	**$118.1**	**$121.50**

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*Preliminary; not FERC-approved.

**Includes $3.6 million for geosciences.

Exhibit 2
Total United States Gas Reserves and Resources*

	Technically Recoverable Gas, Tcf	Recoverable Gas by Price	
		$3/Mcf	$3-$5/Mcf
Lower 48 (Conventional)			
Proved Reserves	159	159	--
Inferred Reserves	227	164	18
Gas Resources Associated with Oil	61	30	11
Undiscovered	353	142	87
Subtotal	800	495	116
Lower 48 (Unconventional)			
Gas in Low-Permeability Reservoirs	180	70	49
Coalbed Methane	48	8	4
Shale Gas	31	10	5
Subtotal	259	88	58
Alaska			
Reserves	33	7	0
Inferred	96	5	2
Subtotal	129	12	2
Total	1,188	595	176

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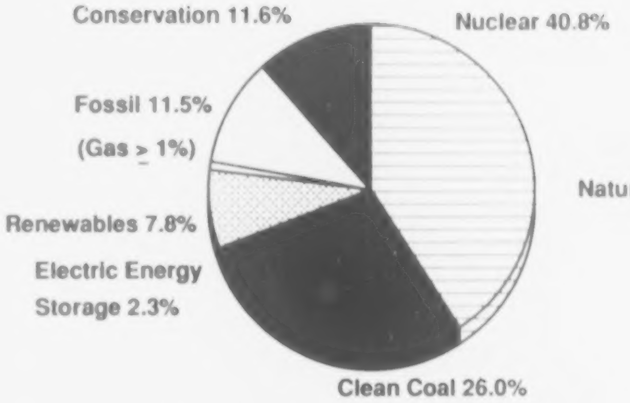
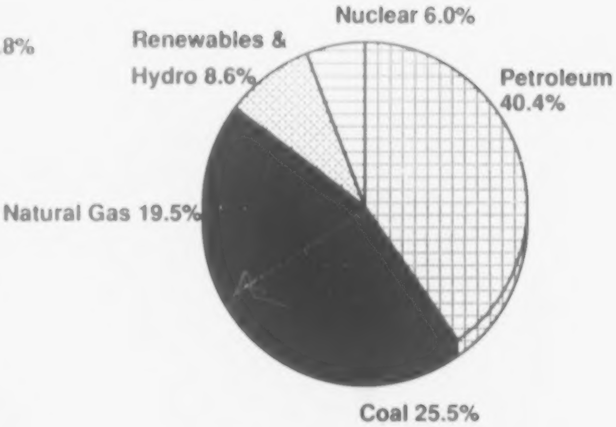
*An Assessment of the Natural Gas Resource Base of the United States, prepared by Argonne National Laboratory for U.S. Department of Energy Office of Policy, Planning, and Analysis, May 1988

Exhibit 3

DOE's R&D Program is Out of Balance With Future Energy Needs



FY 1991 DOE Energy R&D Budget Request
Increasing Energy Efficiency and
Securing Future Energy Supplies
Total - $1754.4 million
(Excluding Power Marketing)



2010 Primary Energy Consumption*
(Total 105.6 Quads)
*1989 GRI Baseline Projection
of U.S. Energy Supply & Demand to 2010

Exhibit 4
Recommended DOE Gas-Related Budget for FY 1991 for Fossil and Conservation R&D
($ Millions)

	FY 1989 Approp.	FY 1990 Approp.	FY 1991 Gas Industry Recommend.
Fossil Energy			
ARTD	$ 6.00	$ 4.7	$ 6.0
Fuel Cells (Gas-Related)	17.03	30.1	40.5
Heat Engines (Gas-Related)	3.0	0.0	2.9
Surface Coal Gasification	22.45	24.5	9.0
Unconventional Natural Gas	12.38*	14.6*	23.3*
Underground Coal Gasification (Technology Base)	1.37	N/A	N/A
Combustion Systems Emission Control	0.00	2.5	9.0
Fossil Energy Subtotal	$62.23	$76.4	$90.7
Conservation R&D			
Heat Pumps & Desiccant Cooling	$ 7.87	$ 6.62	$ 8.0
Industrial Cogeneration	4.60	9.13	7.8
ECUT (Gas-Related)	13.42	10.67	1.0
Indoor Air Quality	1.39	1.40	N/A
Natural Gas Vehicles	0.00	4.50	10.6
Conservation Subtotal	$27.28	$32.32	$27.4
Total--Fossil Energy & Conservation R&D	$89.51	$108.72	$118.1

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*Includes geoscience activities.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—ENERGY RESEARCH

WITNESS

HUGH McCASTLAIN, EXECUTIVE VICE PRESIDENT, AMERICAN GAS ASSOCIATION

Mr. ATKINS. American Gas Association, Hugh McCastlain. Did I get it right?

Mr. McCASTLAIN. Mr. Chairman and members of the subcommittee, thank you for my chance to appear here.

I am Hugh McCastlain, executive vice president of ARKLA, a natural gas company serving an eight-state area of the central and southern United States. I am participating in the loan executive program of the American Gas Association and am appearing on its behalf today.

Congressional funding of DOE research programs should have the objective of ensuring that the energy components of our Nation's economy will deliver low cost and secure energy, while at the same time including our environment. This will enable U.S. business and industry to remain competitive in the world economy and reduce our dependence upon foreign energy sources.

The natural gas industry can make contributions towards achieving those objectives. First, natural gas is, for most uses, the most efficient, economic, and environmentally-safe fuel to choose from. Second, new highly-efficient, gas-powered electric generation will allow electric energy use to grow while minimizing the need for expensive increments of large capacity generating plants and the resulting impact on customer rates.

Finally, natural gas can be a significant factor in helping to economically improve our environment. The large natural gas resource bay is a logical measure to meeting the Nation's energy objectives. However, to ensure that natural gas can contribute over the long term, research and development is needed to increase economical gas supplies and improve the efficiency of end-use technologies.

DOE R&D funding is essential to these long-term high-risk projects that otherwise could not be undertaken by the private sector. DOE has focused greater attention on natural gas in its release of a study on the natural gas resource base. Additionally, the Department has asked for comments on its natural gas research plan and its national energy strategy proposal.

We hope the next step will be DOE's support of adequate gas supply-related research to ensure the recovery of a larger percentage of the total gas resources. This support has been shown by DOE increasing its total gas-related research budget request from $44 million to $65.4 million, up some 45 percent over 1990. However, this is significantly less than the $123 million that was finally approved by Congress. This was a three-fold increase over DOE's request, and we are pleased with your subcommittee's foresight.

In 1991, the gas industry recommends an appropriation of $118.1 million for all DOE gas-related R&D falling under your jurisdiction. Specifically, AGA recommends $9.7 million for fossil energy

R&D and $27.4 million for conservation R&D. This includes the critically important unconventional natural gas recovery programs which we recommend be funded at $23.3 million.

Also included are fuel science programs that will increase our knowledge of gas and oil exploration and recovery. We believe we can make improvements in that technology.

Any clean air legislation in the docket will most likely contain emission control. AGA's recommendation this year includes $9 million for primary research and demonstration projects for combustion systems and emissions control research.

A special note, we need programs on the use of natural gas in combination with coal and boilers to reduce NOX and SO2 emissions.

Vehicle emissions are an extremely important part of the pollution problem. We in the natural gas industry think that vehicles fueled by compressed natural gas are the answer to the problem, since these vehicles produce only a fraction of the harmful emissions of gasoline-fueled vehicles. By using our own resources, we add to our Nation's security and competitiveness by not importing fuel from other nations. Therefore, we recommend $10.6 million for R&D for natural gas powered vehicles, to include full funding to implement and develop the demonstration program authorized in the Alternative Motor Fuels Act.

In conclusion, although we recognize the continuing budget deficit places severe constraints on Federal energy research dollars, our total recommendation is higher than in previous years because we are at a critical point in time where we must lay an energy supply foundation that will support our Nation for years to come.

As the Administration, Congress, and the public focuses on secure energy, clear air problems, energy conservation, and efficient end-use technologies, there is a general consensus that natural gas has a large role to play in solving these problems. Therefore, increased Federal funding for gas- related research and development is necessary to implement the national plan.

Thank you.

Mr. ATKINS. Thank you. Mr. McCastlain, can you tell me, do you expect, out of the investment, if we make the investment that you recommend of the $23.3 million for unconventional natural gas recovery, do you expect any patentable things to come out of that research, or do you expect it all to be just generic, geological information?

Mr. MCCASTLAIN. I have no idea whether it would be patentable or not. I'm not familiar with the details of the research.

Mr. ATKINS. I'm just curious. One of the things that certainly would make it easier to put the investment in is if there were some way when—presumably we're with this research going to unlock some gas sources that wouldn't otherwise be available. Given that, the question is whether there is some way to recover some portion of the profits that the owners of those fields may get.

I know we have had quite a good deal of success in cost sharing on the front end, but the question is whether on the back end, it is possible to recover any of our costs from the people who will be the beneficiaries of the research.

Mr. McCastlain. It seems possible. Perhaps, someone from GRI might be able to answer that.

Mr. Atkins. Perhaps you folks could provide an answer for the record.

Mr. McCastlain. Okay.

Mr. Atkins. That would be appreciated.

[The prepared statement of Hugh McCastlain follows:]

AGA American Gas Association

1515 Wilson Boulevard, Arlington, Va. 22209
Telephone (703) 841-8400

March 22, 1990

Honorable Sidney Yates
Chairman
Subcommittee on Interior
  and Related Agencies
Committee on Appropriations
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Yates:

This letter supplements the testimony presented by the American Gas Association to your Subcommittee on March 8, 1990. Specifically, we are responding to a question posed by Rep. Chester Atkins regarding the feasibility of patents stemming from investment in unconventional gas recovery technology.

Of course, there is no guarantee that every venture using novel production technologies will always yield positive results with a return on investment. However, given the nature of this research, it appears likely that new techniques, processes, tools, intellectual property, and equipment would be developed and could be patented.

If this question stems from a broader concern of how the federal government can receive, for the taxpayer, a reimbursement for funds invested by the federal government in research that achieves commercial success, there is a broad range of mechanisms that have been employed. Usually, this issue is addressed and the mechanism is established when the contracting firm negotiates its contract with the affected agency.

The Federal Technology Transfer Act of 1986, 15 U.S.C. 3701 et. seq., the subsequent Executive Order No. 12591 (April 10, 1987), and the National Competitive Technology Transfer Act of 1989, 15 U.S.C. 3131, established methods by which government-operated federal laboratories could negotiate cooperative research and development agreements with other federal agencies, units of state and local government, industrial organizations, foundations, or other persons. Included is authority to negotiate agreements that may grant licenses for inventions to collaborating parties while the government retains rights to utilize the invention; to waive, in whole or in part, government rights to the invention; and to permit government employees to participate in results of invention commercialization. Also covered is the manner in which royalties from licensing or assignment of inventions under the negotiated agreements are distributed, to the inventor, to the federal laboratories, and to the U.S. Treasury.

These Acts, accompanied by the federal acquisition regulations, provide methods whereby the federal government, and inventors who are federal employees, can participate in commercialization efforts. These methods are either via royalty payments or, if in the contract with the collaborating party, direct reimbursement from profits and/or cost savings with a reimbursement schedule that can also be negotiated. In the case of non-profit organizations, small businesses, and universities, patent waiver is automatic.

The established laws, procedures, and practices appear to provide a flexible method by which the taxpayers' interests are protected while not discouraging the private sector from participating with the federal government in cost-sharing projects. Both the federal government and outside parties should be able to negotiate mutually beneficial agreements that have as their goal research that provides for secure, environmentally safe, and affordable energy for our nation.

Sincerely,

Hugh McCastlain

Hugh McCastlain
Manager,
Energy Technology
  Development

TESTIMONY OF HUGH McCASTLAIN
EXECUTIVE VICE PRESIDENT
OF ARKLA
SERVING AS MANAGER,
ENERGY TECHNOLOGY DEVELOPMENT
FOR THE
AMERICAN GAS ASSOCIATION
BEFORE THE SUBCOMMITTEE ON INTERIOR
AND RELATED AGENCIES
HOUSE COMMITTEE ON APPROPRIATIONS
ON THE FY 1991 DEPARTMENT OF ENERGY
RESEARCH AND DEVELOPMENT BUDGET

March 8, 1990

Mr. Chairman and Members of the Subcommittee: The American Gas Association (A.G.A.) is a national trade association comprised of some 250 natural gas distribution and transmission companies serving over 174 million natural gas consumers throughout the United States. We appreciate this opportunity to present our views on natural gas-related research and development (R&D) conducted or sponsored by the Department of Energy (DOE).

The natural gas industry recommends an appropriation of $118.1 million for all DOE gas-related R&D in Fiscal Year (FY) 1991 under this Subcommittee's jurisdiction. This total is broken down as follows: $90.7 million for fossil energy R&D; and $27.4 million for conservation R&D, which includes $10.6 million for a natural gas vehicle R&D program.

The Importance of Gas-Related Research

The United States needs an adequately funded DOE research program, not only to meet future energy needs and reduce national security risks, but also to remain competitive in today's world economy. Gas-related research should be the most important component of DOE's research program.

Natural gas energy has an important role because its attributes favor its use in a myriad of applications. Natural gas is the cleanest of all fossil fuels. Gas can be used for pollution control by itself and to reduce sulfur and nitrogen oxide emissions of other fossil fuels. Gas can also be used as a vehicular fuel. No other single fossil fuel can be used in as many applications, with the inherent environmental benefits as natural gas.

The natural gas industry's million-mile transmission and distribution pipeline network provides an existing infrastructure to deliver energy and environmental improvements to every region of the country. Further, natural gas can be converted into usable energy more efficiently and inexpensively than other fossil fuels.

Research and development programs can continue to improve end-use appliance efficiency, as well as provide energy supply benefits. DOE's role in natural gas research serves two very important purposes in pursuit of these goals. First, DOE's support of gas supply-related research will ensure the recovery of a larger percentage of the total gas resource base, which, when hydrates are included, is much larger than the current estimates of the economically recoverable gas resource base. The amount of gas that can be recovered from the total gas resource base is directly contingent upon our ability to develop new tools and techniques to recover this gas at commercially viable prices.

In May 1988, the Department of Energy released a study entitled, An Assessment of the Natural Gas Resource Base of the United States. This study concluded that, in the lower 48-states, there are 1,059 trillion cubic feet (Tcf)of gas that can be tapped with existing technology. At the 1988 level of nationwide gas consumption, this amount is approximately equivalent to a 58-year supply. While the number is encouraging, low gas prices have forced new drilling ventures to address only the less risky and shallower deposits where payback on investments is more likely. What remain to be developed are concepts for recovering conventional and unconventional gas at competitive prices. Federal sponsored research is necessary to exert downward pressure on gas exploration and production costs, providing increased confidence that gas will continue to be available at competitive prices.

DOE funding is also needed to make significant improvements in the area of energy efficiency through the development of gas technology. Research of this sort will allow for the more efficient use of our domestic resource, and thereby reduce our nation's reliance on foreign oil. It will also facilitate economic growth by enabling U.S. industry to compete in the global marketplace more effectively, using our own resources and reducing pollution.

The gas industry has always recommended funding that is consistent with sound fiscal policy. However, our recommendation for FY 1991 will show increases in fuel cells, natural gas vehicles, heat combustion systems and other industrial technology commercialization funding. Such an increase is sound public policy and in keeping with the need for least-cost clean air compliance measures.

Specific Funding Recommendations

Fossil Energy R&D: $90.70 Million

(1) Unconventional Natural Gas ($23.3 million)

Devonian shales and tight sands are estimated to contain more than 1,800 Tcf and 900 Tcf of natural gas, respectively. Tight formation gas is produced using advanced recovery techniques such as hydraulic fracturing. A.G.A. estimates that favorable economic conditions and substantial investment in advanced recovery techniques could increase the accessible gas resources and improve the economics of gas production.

In order to maximize the amount of natural gas recovered from our abundant resource base, basic geoscience research must be expanded. This research should be aimed at increasing our knowledge of the geological/geochemical/geophysical characteristics and parameters of both conventional and unconventional formations. Moreover, because of the potentially enormous size of what we call advanced unconventional natural gas resources, extensive research is necessary to verify how much may be technologically and economically recoverable.

To enhance the development of technology necessary to recover the gas from unconventional gas formations more research must also be conducted to develop and refine advanced stimulation and drilling techniques. Field testing and a technological database must also be established. We are recommending funding of $23.3 million in the unconventional gas recovery program to continue DOE's secondary gas recovery program and ongoing research activities in western tight sands, Devonian shales, and other complex formations and to support expanded geoscience-type research.

(2) Surface Coal Gasification ($8.5 million)

For surface coal gasification to make a significant contribution to gas supplies, gasification techniques must be developed to accommodate high-sulfur Eastern coals and combustion-inhibiting coal "fines". Research must be conducted to develop techniques for gasifying these "fines," for disposition of liquid byproducts, and for consolidated "fines" and tars for utilization. Scientific and engineering feasibility studies of advanced generation gasification processes must also be conducted to develop a technological database for such processes.

(3) Fuel Cells ($40.50 million)

The electrical conversion efficiency of natural gas-powered fuel cells is approximately 15-20 percent greater than the conversion efficiency of traditional electrical generation. Using fuel cells in certain cogeneration applications can achieve combined electrical and thermal conversion efficiencies of 80 percent, compared to conversion efficiencies of 33 percent by conventional coal-burning central station electric powerplants. Fuel cells are also environmentally benign, emitting virtually no pollutants.

Because of the importance of this technology, we recommend a total of $40.0 million for fuel cells. While we support a strong program for additional technology development for phosphoric acid fuel cells powerplants, in view of DOE's budget constraints, we are asking for only $1.5 million in FY 1991. We also recommend that $33.0 million be used to support development of molten carbonate fuel cells, and $6.0 million should be used for continued development of advanced concepts such as solid oxide fuel cell technologies. The second and third generation fuel cell concepts are still years away from commercial use and, therefore, are critically dependent upon continuity of federal R&D support to supplement industry efforts.

(4) Combustion Systems/Emission Control ($9.0 million)

Because of the importance of this program to the nation as part of any clean air act legislation ultimately adopted, $9.0 million is needed for programs on utility cofiring and reburn technologies, industrial cofiring and combustion research.

Basic cofiring of coal with natural gas involves the injection of gas into the boiler to provide a fraction of its total heat input, resulting in SO_2 and NO_x reductions. Reburn technology is aimed primarily at reducing powerplant NO_x emissions. As in cofiring, reburn involves using gas as a small portion of the boiler fuel. Unlike basic cofiring, however, reburn technology involves injecting that fuel into a zone beyond the primary combustion zone to create a natural gas rich "reburn" zone. Combining reburn with sorbent injection results in both NO_x and SO_2 reductions.

To date, basic cofiring has been tested at one commercially operational plant. Tests of all three cofiring technologies are scheduled to begin at six other power plants within the next year. Two of these projects are in Illinois and the others are located in Indiana, Oklahoma and Ohio. These projects are being funded from a variety of sources, including the natural gas industry and, in some cases, the Department of Energy. In all, a total of almost $52 million will be invested in cofiring demonstration projects. While some projects are at the demonstration phase, primary R&D is still needed for testing on different boiler types using different proportions of coal and natural gas and general development of novel efficient and economical emission control approaches.

(5) Heat Engines ($2.9 million)

Heat engines will contribute positively to the environment and energy conservation. Therefore, A.G.A. recommends a research and development program in DOE's Heat Engine Program for the development of high efficiency natural gas-powered turbines for electric generation. Such a program should include advanced combined cycle gas turbines, steam-injected gas turbines (STIG) and intercooled steam-injected gas turbines (ISTIG). The ISTIGs, in particular, are approximately fifty percent more efficient than conventional powerplants, cost half as much as new coal or nuclear plants and can make great contributions to the nation's air pollution problems.

(6) Underground Coal Gasification ($0.5 million)

Underground coal gasification could increase the nation's coal resource base substantially. This resource base may comprise as much as 1.8 trillion tons of coal. Moreover, underground coal gasification offers potential environmental, economic and safety advantages over conventional mining. Extensive field testing, data analysis and environmental monitoring is necessary to develop an adequate understanding of the technical basis for linking vertical wells through the coal seam and controlling the movement of the reaction zone.

(7) Advanced Research & Technology Development ($6 million)

We recommend continued support for Advanced Research and Technology Development research activities that provide a technology base for such gas-related technologies as coal gasification and fuel cells.

Conservation: $27.4 Million

(1) Natural Gas-Powered Heat Pumps and Desiccant Cooling ($8.0 million)

The gas heat pump provides heating and cooling in a single unit, using less energy than a conventional or high efficiency furnace uses for heating alone. Current performance estimates suggest that in heating, the gas heat pump could save one-half of the gas used in a conventional furnace and one-quarter of the gas used in a high efficiency furnace.

More research is necessary to develop highly-efficient, reliable and cost-effective gas heat pumps for residential and commercial applications. To improve durability, maintenance and endurance, such research must include the evaluation of promising technical approaches, fundamental research in basic heat pump concepts, processes, phenomena and materials, and research on generic component development. These activities must be integrated into overall gas heat pump system development and analysis.

Likewise, in cooling applications, a variety of technical challenges must be overcome. Needed desiccant improvements include higher performance, reduced equipment size, and improved understanding of the capability of desiccants to remove airborne pollutants, as well as moisture.

(2) Natural Gas Vehicles (NGVs) ($10.6 million)

First and foremost, we recommend full funding for the alternative fueled vehicle demonstrations authorized in P.L. 100-494, the Alternative Motor Fuels Act of 1988. In addition, certain research is needed to improve the use of natural gas as a vehicular fuel.

For example, fundamental research is necessary to acquire a thorough understanding of the intricacies of gaseous fuel injection, carburetor, manifolding, combustion, power optimization and emissions control so that natural gas can become broadly accepted as a transportation fuel. Further research into novel gas compression concepts is necessary to advance the development of gas compressor technology. Research must also be conducted on advanced storage systems (e.g., sorbent materials) to increase the understanding of gas storage technology, particularly the fundamental principles of natural gas adsorption, absorption, clathration and catalysis.

(3) Industrial Processes ($7.8 million)

Applied R&D efforts to improve gas-fired equipment and processes are warranted to provide a variety of important consumer benefits, including: (1) reduction of manufacturing costs through increased productivity and process efficiencies and reduced storage, handling, and preparation costs; (2) enhancement of industry's ability to expand operations and still comply with environmental regulations on combustion and process emissions; (3) stable gas sendouts and seasonal balancing, which can help gas utilities control operating costs; (4) reduction in dependence on imported petroleum and petroleum products; and, (5) maintenance of U.S. manufacturing competitiveness in the international marketplace.

(4) Energy Conversion and Utilization Technology (ECUT) ($1.0 million

Research needs for energy conversion and utilization technology centers on ceramics and other advanced materials. Specifically, research is needed to develop more systemic fabrication techniques for the forming and centering of more reliable ceramic parts. Moreover, reproducible and cost-effective manufacturing and quality control techniques are needed for the large-scale production of reliable ceramic materials and components. ECUT also includes important crosscutting research in the areas of combustion, biocatalyst, and tribology information and technological advancement for the gas industry.

Conclusion

The natural gas industry recognizes that the continuing budget deficit places severe constraints on federal energy research dollars. Our total recommendation this year for programs under this Subcommittee's jurisdiction of $118.1 million is higher than previous years because of the increasing urgency to promote energy conservation through more efficient end use technologies. As the Administration, Congress and the public focus on clean air problems, there is a growing consensus that natural gas has a major role to play in solving this problem. To achieve this objective there must be increased federal funding for research and development to increase natural gas supplies and utilize this gas more efficiently. Our recommendation is still conservative though, since it requests funding for only those technologies that are essential and prudent for the orderly development of new, domestic gas supply and utilization technologies. If Congress adopts our research recommendations, the nation will, over the long term, improve its energy supply security, energy efficiency, and environment.

DOE FY 1991 Gas-Related Budget
Major Gas-Related Research Programs
($ Millions)
(As of 3/07/90)

	FY 1990 DOE Request	FY 1990 Gas Industry Recomm	FY 1990 Congress Approp.	FY 1991 DOE Request	FY 1991 Gas Industry Recomm
ARTD (Gas Related)	3.0	6.0	4.7	3.9	6.0
Fuel Cells (Gas Related)	6.5	36.5	30.1	7.1	40.5
Surface Coal Gasif.	8.7	3.4	23.7	8.5	8.5
Underground Coal Gasif.	0.4	2.5	0.8	0.5	0.5
Heat Engines	0.0	8.0	0.0	0.0	2.9
Combus.--Cofiring/Reburn	N/A	N/A	2.5	0.0	8.5
Combus. Sys/Emiss. Cont.	0.0	2.0	0.0	0.0	0.5
Geosciences	3.0	*	4.0	4.5	*
Unconventional Nat'l Gas	4.1	15.0	14.6	13.7	23.3
Conservation	10.2	29.5	25.4	17.8	16.8
NGV/Diesel Vehicles	0.7	9.5	2.5	4.0	10.6
Biofuels	4.5	5.0	8.6	2.5	8.0
Geopressured Resources	2.9	8.4	6.0	2.9	9.6
TOTAL	$44.0	$125.8	$122.9	$65.4	$135.7

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*While the gas industry is supporting geosciences as a concept, it is not supporting a specific line-item funding level. The industry is supporting a funding level of $10 million for gas-related geoscience work.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—ENERGY RESEARCH

WITNESS

PAUL TARMAN, VICE PRESIDENT, RESEARCH AND DEVELOPMENT, INSTITUTE OF GAS TECHNOLOGY

Mr. ATKINS. Mr. Paul Tarman, speaking on behalf of the Institute of Gas Technology.

Mr. TARMAN. Good morning, Mr. Chairman. My name is Paul Tarman. I'm vice president of Research and Development at the Institute of Gas Technology.

Mr. Chairman, January 1990 was an historic month. For the first time in history, we imported over half of our oil product demand. Our dependency on foreign oil continues to grow. Domestic crude output decreased by about 550,000 barrels per day in 1989 and is expected to fall an additional 350,000 barrels per day in 1990. This trend cannot be reversed unless we develop new technologies that compete economically with imported oil.

Furthermore, these new technologies must address the growing public concern with our environment. The natural gas industry has addressed these issues by recommending a wide range of gas-related research programs. IGT strongly supports this position. It promises much more efficient use of our domestic energy resources. The Congress and the scientific community must work together to select a technology slate that preserves Federal funding yet develops all of our domestic energy resources—oil shale, coal, and natural gas, and at costs that cap world energy prices.

Eastern oil shale is a vast, yet uncapped, energy resource, located in states where energy markets, mining, transportation, and refining infrastructures already exist. Two new technologies—pressurized fluidized bed hydroretorting, or PFH, is now under development at IGT, and the KENTORT II process being developed by the University of Kentucky could, if fully developed, yield up to 600 million of barrels of oil from eastern shales.

In order to move these technologies closer to maturity, IGT recommends that $8.5 million be appropriated for the eastern oil shale research including $4.35 million to scale the PFH process to a one-ton per hour process development unit, $1.15 million to improve process costs and determine product marketability, $375,000 for continued support of the KENTORT II technology, and $380,000 to continue environmental studies.

Coal is another vast resource. Our country has almost one-third of the world's total recoverable coal reserves. We must find new environmentally-acceptable ways to use this vast resource. One such way is mild gasification which produces valuable coal products. IGT is one of our research teams working on mild gasification. DOE must soon decide which technology to scale to the 24-ton per day process development unit.

IGT recommends that $8.5 million be appropriated to support DOE's mild gasification program and that the process selected for scale-up be able to process all ranks of U.S. coal.

Natural gas is our cleanest burning fuel. IGT has two technologies that will increase our domestic supply to meet this rising need. First, IGT's inert gas sweep technique can be used to recover the natural gas left in abandoned reservoirs. This would more than double recovery of the original gas in place.

Second, IGT's experience in measuring porosity and permeability can be used to determine both the presence and deliverability of deep sedimentary basins. To advance these areas, IGT recommends $1.75 million to develop the inert gas technique to reopen the industry and to investigate the feasibility of natural gas production from deep sedimentary basins.

Finally, Mr. Chairman, IGT strongly supports the testimony of M-C Power Corporation and Combustion Engineering regarding the need to increase molten carbonate fuel cell funding to the $30 million level so that all three teams can continue staff research and scale up design.

Mr. Chairman, that concludes my verbal testimony, but I would like to point out that I have included a few other recommendations for your consideration in my written testimony.

Thank you very much.

Mr. ATKINS. Thank you. I appreciate that. Could you give me your indication of when you think eastern oil shale may be commercially viable?

Mr. TARMAN. With sufficient funding——

Mr. ATKINS. Sufficient funding being on the level that you have recommended?

Mr. TARMAN. On the level we recommended and scaled up to this level, I'd say turn of the century or a little earlier. You have to go through the PDU scale and then through a large pilot scale. Just the PDU scale, a couple of years, after 1995.

Mr. ATKINS. Sometime after 1995 and before the year 2000?

Mr. TARMAN. In that range.

Mr. ATKINS. Do you have an official position on that and some kind of backup from IGT?

Mr. TARMAN. Well, I could provide you with some written backup for that.

Mr. ATKINS. I'd appreciate it if you could for the record.

[The material was not supplied to the subcommittee at the time of printing.]

Mr. TARMAN. Thank you.

Mr. ATKINS. Thank you very much.

[The prepared statement of Paul Tarman follows:]

STATEMENT BY PAUL TARMAN
VICE PRESIDENT, RESEARCH AND DEVELOPMENT
INSTITUTE OF GAS TECHNOLOGY
SUBCOMMITTEE ON INTERIOR
HOUSE COMMITTEE ON APPROPRIATIONS
March 8, 1990

This testimony proposes recommendations to FY91 Appropriations for the Department of Energy non-nuclear programs. Specific requests are:

- $8.5 million for mild gasification of coal, including $1.5 million for continued co-product research using IGT's current facilities, $4.0 million to continue the construction of the first PDU, and $3.0 million to initiate a second PDU if necessary to demonstrate the mild gasification of all ranks of domestic coal.

- $30.0 million for the molten carbonate fuel cell program, divided among the three current development teams, to continue the full system development and scale-up of two of the current design approaches representing the broadest possible technical diversity, and continue stack research on the remaining design.

- $8.5 million for Eastern oil shale, including $4.35 million to initiate the scale-up of the PFH process to a one-ton/hour process development unit, and $1.15 million to pursue further cost-effective improvements in the PFH process and evaluate the market qualities of the oils and byproducts produced.

- $0.8 million to develop a biological process, using IGT's technique, to convert certain classes of chemicals into oxygenated single stereo isomers and to develop, in a project currently coordinated with GRI and IGT, technology to convert saturated hydrocarbons into more valuable unsaturated hydrocarbons, thus expanding our chemical feedstock supplies.

- $0.75 million for the development of IGT's Isothermal Adiabatic Pressure Swing Adsorption (IAPSA) and microbial gas upgrading processes to upgrade subquality natural gas.

- $1.75 million for a program to increase the natural gas supply in the U.S. by using inert gas injection to increase recovery of natural gas and for a program to investigate the feasibility of natural gas production from deep sedimentary basins in the U.S.

Mr. Chairman, January 1990 was an historic month. For the first time in our history, we imported over 50% of our oil and oil product needs. Such reliance on imported energy was not attained even during the worst periods of the 1970's energy crises. In 1989, oil imports increased more than 8% above 1988, accounting for 45% of our 1989 trade deficit.

These increases are not due to increasing demand; worse yet, they are at the expense of our domestic production. Domestic oil output decreased by more than a half-million barrels per day in 1989, and is expected to fall an additional 350,000 barrels per day this year. This trend will continue unless we develop new technologies that compete economically with imported oil. We need short-term solutions to meet current demand, but we also need long-term solutions to reverse this trend. The lead times for bringing our most promising technologies to market are long, requiring careful and adequately funded research and development. Furthermore, these technologies must be energy efficient while simultaneously maintaining a sound commitment to environmental protection and stewardship.

Attention to energy and environmental policies is a growing public concern. The President has joined the Congress in pushing clean air legislation, while the Secretary of Energy has taken on the enormous task of formulating a comprehensive National Energy Strategy for the future. Today's voters look more closely at the environmental records of candidates. Utility users are more willing to pay increased rates as long as those increases produce more environmentally responsible technologies. This trend will surely accelerate.

With the tremendous global political changes that have occurred in recent months, perhaps the most positive "peace dividend" is the opportunity to focus both our dollars and our technical skills on these energy and environmental challenges. With the world looking to us as a model of democracy, we must also be prepared to offer clean, safe, efficient technologies that solve the world's energy needs as well as protect its air and water.

The natural gas industry has offered the Congress a set of recommendations that address both the energy and environmental issues. These gas-related Department of Energy research programs total $135.7 million for FY91. IGT strongly supports this position, which promises more efficient use of our natural gas resources. All our energy resources must be developed. No one resource alone, even our coal, which has an energy value more than one and a half times all the known oil and gas resources in the world, can solve these problems. What happens if the clean air debate this year negates the use of much of our coal resource?

The Congress and the scientific community must work together in selecting the proper technical menu so that scarce federal funds can be wisely spent on energy and environmental solutions that are both politically desirable and technologically achievable. As our reliance on imported energy continues to worsen, federal programs must increase the pace of our search for new sources of domestic energy at a delivery cost that caps world energy prices.

The most difficult task in establishing priorities falls to the Congress. The technologies we recommend today are for advanced development, and by definition bear significant levels of risk and uncertainty of success. The whole role of federal funding is not in avoiding risks, but in assuming risks worth taking on behalf of our national interest.

It is in that spirit, Mr. Chairman, that IGT emphasizes the following specific recommendations for FY91 funding:

EASTERN OIL SHALE:

Eastern oil shale is a vast, yet untapped, energy resource located in states bounded by Alabama, Michigan, Pennsylvania and Illinois--states where energy markets, mining, transportation and refining infrastructures already exist. Technologies designed specifically for producing oil from Eastern oil shale have advanced significantly under DOE contracts. IGT has developed a pressurized fluidized bed hydroretorting (PFH) process that has increased the oil yields from Eastern shale and significantly lowered the per barrel cost. The KENTORT II process has made similar gains. Both programs include comprehensive environmental impact and potential market analyses. This vast domestic energy resource could deliver over 600 billion barrels of oil for our future energy supply. To move these Eastern oil shale technologies closer to maturity,

> **IGT recommends $8.5 million, including $4.35 million to initiate the scale-up of the PFH process to a one-ton/hour process development unit, $1.15 million for further cost-effective improvements in the PFH process and an evaluation of the market qualities of its oils and byproducts, $375,000 for continued support of the KENTORT II technology and $380,000 for continuation of environmental studies on Eastern shale.**

MILD GASIFICATION OF COAL:

Our country has 29% of the world's total recoverable coal reserves, and our coal resource has an energy value one and a half times larger than all the known oil and gas in the world. Finding new, environmentally sound ways to use our coal resources, particularly through the production of value-added byproducts, will allow us to continue to benefit from this vast energy supply. IGT is one of four research teams developing mild gasification technologies, and DOE is currently evaluating proposals to scale up one mild gasification technology to a 24 ton/day process development unit. To support this program,

> **IGT recommends $8.5 million for mild gasification of coal, including $1.5 million for continued co-product research using IGT's current facilities, $4.0 million to continue the construction of the first PDU, and $3.0 million to initiate a second PDU if necessary to demonstrate mild gasification of all ranks of domestic coal.**

NATURAL GAS SUPPLY:

Natural gas is a clean burning, efficient fuel, and we can significantly increase our domestic supply by recovering as much of the gas present in known reservoirs as possible and by identifying new sources of natural gas.

IGT's experience in investigating the use of inert gas to sweep natural gas out of underground storage facilities should now be applied to recover the gas left in natural gas reservoirs by current production technologies.

To find new domestic sources of natural gas, the experience gained through DOE-funded research in deep gas wells should be applied to investigating deep sedimentary basins where large quantities of gas may exist. Research needs to be done both in determining the presence of gas at the lower layers of these basins and in investigating the porosity and permeability of the rock at these depths.

To advance these areas,

> **IGT recommends $1.75 million for a program to increase the natural gas supply in the U.S. by using inert gas injection to increase recovery of natural gas and for a program to investigate the feasibility of natural gas production from deep sedimentary basins in the U.S.**

SUBQUALITY GAS UPGRADING:

The usable natural gas resource in the U.S. can be substantially increased if the subquality gas already discovered could be economically upgraded. The Gas Research Institute has estimated that up to 137 TCF of known domestic gas reserves are currently unusable because of the levels of carbon dioxide, nitrogen or hydrogen sulfide contamination.

Under DOE contract, IGT has developed expertise in designing and manufacturing thermal energy storage materials. By tailoring a thermal storage material specifically to the temperature and heat release characteristics of a pressure swing absorption (PSA) system, making it both isothermal and adiabatic, current PSA technologies could be adapted to efficiently and economically upgrade subquality natural gas in fields where that is not now feasible.

IGT has also discovered a microorganism that rapidly removes essentially all hydrogen sulfide from subquality gas, using carbon dioxide also found in subquality gases to convert hydrogen sulfide to easily removable elemental sulfur. Biological and engineering studies are necessary to determine the optimum approach for using a process based on this microorganism to bring currently unusable subquality gas to market.

To advance these technologies,

IGT recommends $0.75 million for the development of IGT's Isothermal Adiabatic Pressure Swing Adsorption (IAPSA) and microbial gas upgrading processes to upgrade subquality natural gas.

METHANE ENHANCED CHEMICAL SYNTHESIS:

IGT has been developing novel approaches for using methane. One such technology utilizes an IGT microorganism which metabolizes methane to form a catalyst which converts certain classes of chemicals into oxygenated single stereo isomers, high-value chemicals which can now only be produced through expensive chemical or biological processes. Single stereo isomers have unique characteristics in such things as biodegradability, strength, elasticity, biocompatability, optical clarity or electrical conductivity, properties which may have significant new industrial value.

A second technology applies an IGT proprietary catalyst and process to use methane to convert saturated hydrocarbons into unsaturated hydrocarbons, thus converting a chemical feedstock that is currently in abundant supply into one which has significantly higher value and for which there is high demand.

Because further research is needed to advance both these technologies,

IGT recommends $0.8 million to develop a biological process, using IGT's technique, to convert certain classes of chemicals into oxygenated single stereo isomers and to develop, in a project currently coordinated with GRI and IGT, technology to convert saturated hydrocarbons into more valuable unsaturated hydrocarbons, thus expanding our feedstock supplies.

MOLTEN CARBONATE FUEL CELLS:

Finally, Mr. Chairman, IGT strongly supports the testimony given by M-C Power and ABB Combustion Engineering to increase funding for advancing the development of molten carbonate fuel cells. As the developer of the IMHEX internal-manifolding approach, and a partner with M-C Power in its commercialization,

IGT recommends $30.0 million for the molten carbonate fuel cell program, divided among the three current development teams, to continue the full system development and scale-up of two of the current design approaches representing the broadest possible technical diversity, and continue stack research on the remaining design.

Mr. Chairman, that concludes my testimony. I would be happy to answer any questions.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—FUEL CELLS

WITNESS

FRANK C. SCHORA, PRESIDENT, M-C POWER CORPORATION

Mr. ATKINS. Frank C. Schora, M-C Power?

Mr. SCHORA. Mr. Chairman, my name is Frank Schora. As president of M-C Power, I would like to inform you of the significant process that the M-C Power team, which includes combustion engineering and the Institute of Gas Technology, has made since last year in fuel cell development. This testimony recommends $30 million for molten carbonate fuel cell development be included in the fiscal year 1991 appropriations for the Department of Energy nonnuclear programs. The recommendation is for work to be undertaken in response to DOE's recent PRDA for simulated coal gas molten carbonate fuel cell power plant system verification, with funding for two developers at a $12 million level for complete power plant system development and the third contract at a $6 million level for stack development only.

M-C Power was established in 1987 with the sole objective of scaling up and commercializing the molten carbonate fuel cell. Early last year we moved into prototype manufacturing facilities.

Fuel cells hold a number of advantages over other types of electric power-generating concepts. This especially holds true for molten carbonate fuel cells, which with up to 55 percent efficiency for coal-based and up to 62 percent efficiency for natural gas-based systems, have higher electrical-generating efficiencies than other fuel cell types. The molten carbonate fuel cell will be easy to manufacture and will be fabricated from relatively inexpensive materials.

Power plants based on the molten carbonate fuel cell will exhibit superior environmental characteristics. If used in a new coal-based power plant, the anticipated 55 percent electric power-generating efficiency will result in a 40 to 45 percent reduction in both carbon dioxide emissions and fuel consumption compared to a conventional coal-fired plant.

The M-C Power team has made significant progress since last year. Four tests have been completed on subscale internal manifolding fuel cell stacks. All have been successful and indicate that we have achieved a breakthrough in solving the carbonate pumping problem which still plagues other approaches to molten carbonate fuel cell development. This problem is inherent with external manifolding stacks, but is solved by IMHEX design. No carbonate pumping has been detected in our four tests, and we understand that most of our foreign competitor molten carbonate fuel cell developers are also using internal manifolding designs with the same positive results.

M-C Power is now in the process of scaling up cell size to the full commercial size of 10 square feet. We believe this size will be sufficient for future commercial application. It will be cost effective.

M-C Power's Illinois manufacturing facility for producing the electrodes and the electrolytes at full size will be fully operable by

June of this year. We will initiate assembling full area stacks shortly thereafter. Our manufacturing facility is the largest and most modern molten carbonate fuel cell component fabrication plant in the world.

At present, M-C Power, with our team of CE and IGT, is working under a DOE bridging contract until a congressionally-mandated down-selection is made. We strong hope that the selection made will include further commercialization efforts on our internal manifolding concept, giving the molten carbonate fuel cell program its broadest technical approach.

I am pleased to note that our team significantly exceeded the 20 percent cost sharing required in the PRDA, a strong indication of non-Federal support for our IMHEX design and program.

M-C Power believes that we can fully meet the objectives of the PRDA, and intends to demonstrate a 250 kilowatt molten carbonate fuel cell IMNEX system in California within the 36-month program period.

Thank you for your opportunity to appear, and I'd be pleased to answer any questions.

Mr. ATKINS. Thank you.

Mr. Schora, can you tell me when you expect to have a commercially-viable system?

Mr. SCHORA. We are targeting for a commercially-viable system in the year 1995, possibly 1994.

Mr. ATKINS. 1995?

Mr. SCHORA. Yes.

Mr. ATKINS. Now can you tell me how large you believe the market for that would be?

Mr. SCHORA. We have undertaken market studies. We're presently undertaking additional market studies. I'd like to submit information on that for the record, sir, written information.

[Material was not supplied to the subcommittee at the time of printing]

Mr. ATKINS. Do you have a particular view on—you're asking us, as I understand it, double, almost to double what we did last year. We were at 16.8 last year, I believe. That was substantially over the Administration recommendation.

Mr. SCHORA. Yes, sir.

Mr. ATKINS. If we were to go that far, would you be amenable to entering into some kind of contract that would allow Federal cost recovery once the technology becomes commercially viable?

Mr. SCHORA. I believe that's fully reasonable, yes.

Mr. ATKINS. Could you submit for the record the position of M-C Power on that issue of cost recovery?

Mr. SCHORA. Yes, sir, I will

[Material was not supplied to the subcommittee at the time of printing.]

Mr. ATKINS. Thank you very much.

Mr. SCHORA. You're welcome, sir.

[The prepared statement of Frank Schora follows:]

Testimony Of
Frank C. Schora, President
M-C Power Corporation
Before the
House Appropriations Subcommittee on Interior and Related Agencies
March 8, 1990

Mr. Chairman and Members of this Subcommittee, my name is Frank Schora. As president of M-C Power, I would like to inform you of the significant progress that the M-C Power team, which includes Combustion Engineering (CE) and the Institute of Gas Technology (IGT), has made since my testimony presented to this subcommittee last year. This testimony recommends $30 million for molten carbonate fuel cell development be included in the FY91 Appropriations for the Department of Energy non-nuclear programs. The recommendation is for work to be undertaken in response to DOE's recent PRDA for "Simulated Coal Gas Molten Carbonate Fuel Cell Power Plant System Verification" with funding for two developers at a $12 million level for continued complete power plant system development and the third contractor at a $6 million level for stack development only.

Mr. Chairman, as you may remember M-C Power was established in 1987 with the sole objective of scaling up and commercializing the molten carbonate fuel cell. Early last year we moved into prototype manufacturing facilities in Burr Ridge, Illinois.

Fuel cells hold a number of advantages over other electric power generating concepts. This especially holds true for molten carbonate fuel cells, which with up to 55% efficiency for coal based and up to 62% efficiency for natural gas based systems, have higher electrical generating efficiencies than other fuel cell types. The molten carbonate fuel cell will be easy to manufacture, and will be fabricated from relatively inexpensive materials, giving it a distinct cost advantage over other types of electric power generating devices. The operating temperature of 1200°F will enable efficient use of waste heat in cogeneration applications, and for bottoming cycles in utility applications. With the present phosphoric acid type fuel cell such heat recovery is not possible.

Power plants based on the molten carbonate fuel cell will exhibit superior environmental characteristics. The molten carbonate fuel cell will reduce SO_x by 99.95% and NO_x by 84% when used for repowering a conventional coal based power plant. If used in a new coal based power plant, the anticipated 55% electric power efficiency will result in a 40-45% reduction in both carbon dioxide emissions and fuel consumption compared to a conventional coal fired plant. In applications using natural gas as fuel, there will be virtually no sulfur or NO_x emissions, and with the inherent high efficiency, reduction of carbon dioxide and fuel use will occur when compared to alternate ways of producing electric power from natural gas. With cogeneration, applications are planned using the waste heat for producing high quality steam or directly for heating or air conditioning increasing total system efficiency to as high as 85%.

(2)

The M-C Power team has made significant progress since I testified before this subcommittee last year. To date, four tests have been completed on subscale fuel cell stacks of one square foot cell area. All have been successful and indicate that we have achieved a breakthrough in solving the carbonate pumping problem which still plagues other approaches to molten carbonate fuel cell development. Carbonate pumping, the movement of the carbonate electrolyte from one end of the stack to the other by wicking of the molten carbonate in the external manifold gasket, will lead to premature stack failure, resulting in the stack falling short of the endurance needed for commercial acceptance. This problem is inherent with external manifolded molten carbonate fuel cell stacks, but is solved by the use of internal manifolding, the basis for our IMHEX® design. No carbonate pumping has been detected in our four tests and we understand that most of our foreign competitor molten carbonate fuel cell developers are also using internal manifolding designs with the same results.

M-C Power is now in the process of scaling up in cell size to the full commercial size of approximately 10 square feet. We believe this size will be sufficient for future commercial applications and will be cost effective. Our first full size separator plates, which are the structural elements of a stack, separating one cell from the next, should be in manufacture by June of this year, under the direction of CE. We have pursued the pressing of separator plates from thin metal to minimize fuel cell stack fabrication costs and enable the eventual mass production of fuel cell stacks. This technique also reduces the amount of structural metal in the stack to one third of that required in the older external manifold designs, leading to additional lowering of costs.

M-C Power's Illinois manufacturing facility for producing the electrodes and electrolytes at full size will also be fully operable by June of this year. We will be able to initiate assembling full scale stacks for testing shortly thereafter. Our manufacturing facility is the largest and most modern molten carbonate fuel cell component fabrication plant in the world.

In our overall plan M-C Power will concentrate on the scale-up and manufacture of the IMHEX fuel cell stack. CE will engineer and fabricate the stack support systems and will eventually be the principal marketer when the complete fuel cell system has been developed to the point of commercial readiness. CE is well known by the electric utilities in the U.S. and the world and is familiar with the marketing approaches needed with the utility industry to achieve commercial acceptance. IGT, who has pioneered in the development of the molten carbonate fuel cell concept, will continue to support the team in an R&D mode to ensure that the necessary endurance is achieved.

At present, M-C Power, with our team of CE and IGT, is working under a DOE bridging contract until a Congressionally mandated down-selection is made. Based on the evaluation of proposals submitted by the three current developers in response to a recent PRDA, contracts will be awarded to two of the current contractors for a continuation of full commercialization efforts, while the third contractor will continue to be funded for stack research only.

We strongly hope that the selection made will include further commercialization efforts on our internal manifolded concept, giving the molten carbonate fuel cell program its broadest technical approach. I am pleased to note that our team significantly exceeded the 20% cost sharing requested in the PRDA, a strong indication of non-federal support for our IMHEX design and program.

M-C Power believes that we can fully meet the objectives of the PRDA, and intend to demonstrate a 250 kW MCFC IMHEX system in California within the thirty-six month program period. We are receiving enthusiastic reception for our program from both the utility industry and state government agencies.

We truly believe that our IMHEX internal manifold design molten carbonate fuel cell is ready for scale up to full scale stacks and systems. With adequate funding, we can successfully compete in the world market. Although M-C Power is asking for $12 million for FY91, we anticipate requests for lesser amounts in the following two out years, when cost sharing by industry will become more significant.

I thank you for the opportunity to appear before this subcommittee and would be pleased to answer any questions.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—FUEL CELLS

WITNESS

CLIFFORD MARTIN, ABB COMBUSTION ENGINEERING NUCLEAR POWER, INCORPORATED

Mr. **ATKINS**. Clifford Martin for ABB Combustion Engineering Nuclear Power, Incorporated.

Mr. **MARTIN**. Mr. Chairman, my name is Dr. Clifford Martin. I am a senior consulting engineer of advanced technology at ABB Combustion Engineering, representing Combustion Engineering as a member of the M-C Power team.

This testimony recommends an appropriation of $30 million of fiscal year 1991 funds for the Department of Energy non-nuclear programs for molten carbonate fuel cell development. The appropriation is for work to be undertaken in response to the recent PRDA for "Simulated coal gas molten carbonate fuel cell power plant system verification."

On a worldwide basis, Combustion Engineering is a major designer and fabricator of power generation, power transmission, and power distribution equipment, and related maintenance and environmental services. Combustion Engineer's long-term strategy is to become the supermarket for energy systems entering the 21st century. We see the molten carbonate fuel cell system as a key part of this strategy.

Combustion Engineering is an equity holder in M-C Power and a partner, along with the Institute of Gas Technology, in the M-C Power team undertaking the development and commercialization of the IMHEX molten carbonate fuel cell system. We are responsible to the M-C Power team for systems design and control engineering, component fabrication, site erection, and environmental impact assessment. We are also responsible for the commercialization strategy, marketing, and selling of the molten carbonate fuel cell systems. This strategy is initially directed toward the United States with immediate expansion on a worldwide basis.

We see the molten carbonate fuel cell system as a key energy conversion device. It is very efficient, between 55 and 62 percent, depending on configuration, and environmentally benign with very little pollutant and greenhouse emissions. It is fuel flexible, generally natural gas or coal- gas fueled, but any fuel that is reformable to hydrogen or hydrogen and carbon monoxide is appropriate. Also, the systems have a short construction time, between two and three years, and have a small site footprint.

The distinct advantage of the IMHEX design over our U.S. competitors is the internal manifolding of the fuel cell stack. The breakthrough associated with this approach is the absence of carbonate migration. Migration of the carbonate is inherent in the externally manifolded fuel cell stacks and leads to premature stack failure which limits the endurance needed for commercial acceptance.

The IMHEX design neatly circumvents this major deficiency. The flexibility of the molten carbonate fuel cell systems permits consideration of natural gas fuel as driver for the market entry, evolving to coal gas fuel using combustion engineering's commercial coal gasification objectives. Combustion Engineering has a major project for the demonstration of an entrained-bed coal-gasification unit and Clean Coal II.

The flexibility of the molten carbonate system also supports the concept of repowering of aging utility pulverized-coal-fired boilers.

We believe that with a $12 million funding allocated by the DOE PRDA, we can scale up the stack and systems to a commercial size, allowing the M-C Power teams' molten carbonate fuel cell system to compete successfully in a world market. Combustion Engineering's commitment to this commercialization is reflected in its 30 percent cost share on its tasks for the DOE PRDA.

Mr. Chairman, thank you for this opportunity to speak before you in behalf of the M-C Power team and for the development of molten carbonate systems. I would be happy to answer, or have answered, any questions which you may have.

Mr. ATKINS. Thank you.

Can you tell me where we, in your estimation, where we stand vis-a-vis the Japanese on development of this technology?

Mr. MARTIN. It is my understanding that we are still ahead of the Japanese in this technology, but they are spending much more funds on it than we are currently, much more.

Mr. ATKINS. Can you tell me if we're to make the kinds of increases in expenditures that you recommend, your view about licensing the technology that's developed and allowing the Federal Government to recover their investment?

Mr. MARTIN. That is not the type of question that I have the knowledge to answer, but I can get that answer for you, if you wish.

Mr. ATKINS. If you will submit, on behalf of Combustion Engineering, their view on that, I'd appreciate it.

Mr MARTIN. Yes, sir.

[Material was not supplied to the subcommittee at the time of printing.]

Mr. ATKINS. Thank you.

Mr. MARTIN. You're welcome.

[The prepared statement of Clifford Martin follows:]

Testimony of
Clifford B. Martin, Senior Consulting Engineer
ABB Combustion Engineering Nuclear Power, Inc.
before the
House Appropriations Subcommittee on Interior and Related Agencies
March 8, 1990

Mr. Chairman and members of the subcommittee, my name is Dr. Clifford B. Martin. I am a Senior Consulting Engineer of Advanced Technology at ABB Combustion Engineering. I am here representing Combustion Engineering as a member of the M-C Power team. This testimony recommends an appropriation of $30 million of FY91 funds for the Department of Energy non-nuclear programs for molten carbonate fuel cell development. The appropriation is for work to be undertaken in response to the recent PRDA for "Simulated Coal Gas Molten Carbonate Fuel Cell Power Plant System Verification".

On a world-wide basis, Combustion Engineering is a major designer and fabricator of power generation, power transmission and power distribution equipment, and related maintenance and environmental services. Combustion Engineering's long-term strategy is to become the "supermarket" for energy systems entering the 21st century. We see the molten carbonate fuel cell system as a key part of this strategy.

Combustion Engineering is an equity holder in M-C Power and a partner, along with the Institute of Gas Technology, in the M-C Power team undertaking the development and commercialization of the IMHEX^{tm} molten carbonate fuel cell system. We are responsible to the M-C Power team for systems design and control engineering, component fabrication, site erection, and environmental impact assessment. We are also responsible for the commercialization strategy, marketing, and selling of the molten carbonate fuel cell systems. This strategy is initially directed toward the United States with immediate expansion on a world-wide basis.

Re-iterating Mr. Schora's testimony: We see the molten carbonate fuel cell system as a key energy conversion device. It is very efficient, between 55 to 62 percent, depending on configuration, and environmentally benign, with very low pollutant and greenhouse gas emissions. It is fuel flexible, generally natural gas or coal gas fueled, but any fuel that is reformable to hydrogen or hydrogen and carbon monoxide is appropriate. Also, the systems have a short construction time, between 2-to-3 years, and have a small site footprint.

The distinct advantage of the IMHEX^{tm} design of the M-C Power team over our U. S. competitors is the internal manifolding of the fuel cell stack. The breakthrough associated with this approach is the absence of carbonate migration. The carbonate is the electrolyte of the fuel cell. Migration of the electrolyte is inherent in the externally manifolded fuel cell stacks and leads to premature stack failure which limits the endurance needed for commercial acceptance. The IMHEX design neatly circumvents this major deficiency.

The flexibility of the molten carbonate fuel cell systems permits consideration of natural gas fuel as the driver for market entry, evolving to coal gas fuel using Combustion Engineering's commercial coal gasification objectives. Combustion Engineering has a major project for the demonstration of an entrained bed coal gasification unit in Clean Coal II. The flexibility of the molten carbonate fuel cell system also supports the concept of the repowering of aging utility pulverized-coal-fired boilers.

We believe that with a $12 million funding allocated by the DOE PRDA we can scale up the stack and systems to a commercial size, allowing the M-C Power teams' molten carbonate fuel cell system to compete successfully in the world market. Combustion Engineering's commitment to this commercialization is reflected in its 30 percent cost share on its tasks for the DOE PRDA.

Thank you for this opportunity to speak before you in behalf of the M-C Power team and for the development of molten carbonate fuel cell systems. I would be happy to answer or have answered any questions which you may have.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/FOSSIL ENERGY—FUEL CELLS

WITNESS

DONALD R. GLENN, VICE PRESIDENT, ENERGY RESEARCH CORPORATION, DANBURY, CONNECTICUT

Mr. ATKINS. Donald Glenn for the Energy Research Corporation?

Mr. GLENN. Good morning. I'm particularly pleased to appear before you, Chairman Atkins.

The speakers that preceded me all have said a lot of truisms, and I think that the basic technology that we are all talking about is well known to the committee and to the administration as well.

To put it in a little better perspective, and why I think it's urgent that we have an aggressive program, alludes to the fact that we have environmental situation that has increasingly been attacked by Congress for a lack of concern earlier, and now it's trying to make up some time.

We have a generation capacity shortage projection that is on hold. As a matter of fact, we've had some brownouts and blackouts this winter with the December cold snap. We still see large new capacity orders lagging in the utility sectors. All of these would bode well in their own ways for increasing the urgency to have our technologies get to the marketplace.

On the positive side of the scenario, ERC's technology is now at full scale. We've completed our component scale-up and we are completing this year, in 1990, building a first full- scale BBU, a building block unit, which represents a major module in the full stack. That will be tested, and we will then embark on a full stack, which will be delivered to our test partners in California for integrated systems testing.

We have recently received the endorsement of our commercialization plan and technology from the Electric Power Research Institute and from the American Public Power Association formally. We have committed to building a pilot plant manufacturing facility starting in the summer, fully dedicated to stack fabrication and testing and delivery as part of a demonstration program we have to begin in 1993.

We have contributed with our private sector partners to date 25 percent of the total cost of our program. We expect over the next three years to increase that to 50 percent. That has been formally proposed to the Department.

In the next three years we will have completed full stack development and will have embarked on a commercialization fabrication and delivery program for demonstration hardware. We expect to have a commercial offering in late 1993.

We believe that shortly following all of this there will be a linkage with coal gasification and, inevitably, moving into the 100-to-300-megawatt size plant designs.

So we think we're doing our part as far as the private sector is concerned, and with the wonderful support of this committee and technical support of DOE and our funding partners, to get this thing out of the labs and into the field. Your aggressive support and continuing of it is vital and very much appreciated.

I'm prepared to answer questions.

Mr. ATKINS. You don't have any particular cost figure that you're requesting in there. Could you tell us what the figure is you're looking at?

Mr. GLENN. Morgantown Procurement asked for a three-year program. We would average, in the time average sense, to the kind of numbers that the Gas Research Institute had mentioned if all three contractors were maintained. I think that the level of effort, when corrected for three contractors, would be about accurate, in the $8-to-$10-million-dollar range.

Mr. ATKINS. And do you have a view in establishing a mechanism for payback if we're to make an increase in the funding?

Mr. GLENN. ERC has already done so with the Government. We have in place now a license arrangement that allows the Government to initiate recoupment of investments made.

Mr. ATKINS. And that would be just for the amount of the Federal investment?

Mr. GLENN. Yes.

Mr. ATKINS. And that would kick in, that recoupment would kick in at what point?

Mr. GLENN. It's a royalty to start as soon as commercial sales begin.

Mr. ATKINS. As soon as commercial——

Mr. GLENN. I'm starting in—it started this year. We are already making that commitment good.

Mr. ATKINS. How much will repayment be this year?

Mr. GLENN. I believe it's $25,000.

Mr. ATKINS. Thank you very much.

[The prepared statement of Donald Glean follows:]

STATEMENT
OF
DONALD R. GLENN
VICE PRESIDENT
ENERGY RESEARCH CORPORATION
DANBURY, CONNECTICUT

TO THE

HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE OF INTERIOR AND RELATED AGENCIES
SIDNEY R. YATES, CHAIRMAN

HEARINGS
ON THE
DEPARTMENT OF ENERGY - FY 1991 BUDGET REQUEST
HEARINGS ON FOSSIL ENERGY:
MOLTEN CARBONATE FUEL CELLS

MARCH 8,1990

Statement by
Donald R. Glenn
Vice President
Energy Research Corporation

The Energy Research Corporation (ERC) is a unique American company in that all of our resources are dedicated to developing technologies and products for generating and storing electricity based on electrochemistry, specifically batteries and fuel cells. This statement is directed to the Molten Carbonate Fuel Cell R&D account with particular emphasis on the Direct Fuel Cell program.

The Situation

The virtues and benefits of fuel cell technology have been oft-stated and are well-known to the Congress and Administration. In short, the major features are:

- o highest electric efficiencies attainable
- o lowest emissions attainable
- o fuel and capacity flexible without compromise
- o quiet, odorless, and compact for ease in siting a "friendly neighbor"

This Committee has been a major force in the nurturing of this technology to ensure its readiness for commercialization at the same time sufficient market demand will be present. The Direct Fuel Cell is positioned well to seize upon an emerging market for power plants which offer significantly reduced pollution, satisfy demand for additional generation capacity in the nineties and beyond, and offer an attractive alternative to new plant investment in today's uncertain financial climate.

The Challenge

ERC's Direct Fuel Cell (DFC) has reached a major threshold, full commercial-scale components and stack building block units. During the next three years (by mid-1993), ERC can accomplish the following key milestones:

- o Build and test several full scale stacks using natural gas and coal-gas fuels
- o Field test 100 kW integrated systems
- o Initiate field test of megawatt-class integrated systems
- o Construct, start up, and operate an ERC-funded, DFC stack, pilot plant manufacturing facility (already in progress)
- o Prepare commercial offering of megawatt-sized DFC power plants

A Promise

ERC and our funding partners have cost-shared or augmented the DOE R&D program with over 20% of the total funding since 1987. During the next three years, private funding participation will exceed 50% if the funds requested in ERC's proposal to DOE-METC are enacted.

For this, ERC will offer the gas and electric utility sectors pre-commercial incentives to support a demonstration and order early production units. To this end, ERC has already presented a preliminary Commercialization Plan to the Electric Power Research Institute and the American Public Power Association. Both agencies have endorsed this plan (see Attachments) predicated on the continued progress and successes of the remaining R&D efforts.

In the aggregate, ERC, its funding partners, and the government have an investment of over $50 million thus far. ERC estimates that commercializing Direct Fuel Cell power plants will require an additional $175 million in private funds. ERC has structured a corporate organization and implementation strategy to accomplish this plan. We are heartened and encouraged by the recent endorsements of this plan and the DFC system by EPRI and APPA.

This program's progress and optimistic outlook is largely attributable to this Subcommittee's steadfast support and belief in the molten carbonate fuel cell. The U.S. will most likely bring this technology to the marketplace first, and with it, the opportunity to establish a critically important foothold in global markets. Others, notably the Japanese, are close behind and will challenge our position for a share in this business. The sooner we can establish a commercial presence, the greater our prospects for capturing a major share of a vast potential market.

Presently, the U.S. still maintains a lead over foreign competitors in our ability to bring MCFC systems to the marketplace in time to redress projected, generation capacity shortfalls. There is also a significant export potential for these technologies. The Congress, and your Committee most specifically, has identified and provided the critical support to keep these programs on a progressive track. Thank you for this vote of confidence.

ERC is fulfilling our commitment to complete this R&D and attract utility support for prompt market penetration. The last threshold is before us. I urge the Congress to sustain this critical final phase. This project stands as a good example of all that a public-private technology R&D effort can yield. Significant non-Federal funds have been invested to date. Let's complete this joint venture and do so in a manner that will prevent program disruption so that we can introduce Direct Fuel Cell power systems responsive to the demands ahead for a clean, efficient electricity supply. Your continued aggressive support will secure the future of molten carbonate fuel cell power and the many benefits inherent in its deployment.

ATTACHMENTS

APPA RESOLUTION

OPPORTUNITY FOR FUEL CELL COMMERCIALIZATION

WHEREAS, the Association's membership adopted a resolution in June 1988, supporting the commercial development of multi-megawatt fuel cell power plants in recognition of the important match this technology offered for the future power supply needs of many public power systems, and

WHEREAS, in response to this policy, the Association issued its *Notice of Market Opportunity (NOMO) for Fuel Cells* in October 1988, which invited responses from prospective suppliers to join in a collaborative partnership with selected public power systems to develop a workable early commercialization plan, and

WHEREAS, a dozen public power systems, with the assistance of the Electric Power Research Institute, acting as the NOMO Review Team have spent more than a year evaluating the vendor responses and conducting detailed follow-up discussions to clarify technical, financial, and commercialization issues, and

WHEREAS, the NOMO Review Team unanimously endorsed in December 1989 one of the resulting commercialization plans, that from Energy Research Corporation (ERC), Danbury, Connecticut, which involves the demonstration and contingency orders for twenty 2-MW early production units, including viable mechanisms to manage buyer risks and the payment of royalties to compensate for early participation, and

WHEREAS, molten carbonate fuel cell (MCFC) technology offers exceptionally high efficiencies, excellent environmental performance, high reliability, and very competitive mature capital and operating costs, and

WHEREAS, implementing the commercialization plan will be the responsibility of ERC and an industry-wide "buyers alliance," including public power systems, to be formed during 1990;

NOW, THEREFORE, BE IT RESOLVED: that the American Public Power Association shall:

1. Commend the NOMO Review Team for their innovative efforts in breaking the impasse impeding the early commercialization of multi-megawatt fuel cell power plants;
2. Support continued funding for the refinement of MCFC technology from the Electric Power Research Institute, the Congress, and appropriate agencies of government; and
3. Communicate the opportunity of this early commercialization initiative to interested public power systems and to support the formation of the industry-wide "buyers alliance."

Approved by APPA Board of Directors, February 1, 1990

EPRI FUEL CELL PROGRAM COMMITTEE STATEMENT

Statement unanimously approved by EPRI Fuel Cell Program Committee concerning the ***Framework and Principles For Commercializing Direct Fuel Cell Power Plants*** prepared by Energy Research Corporation and the APPA NOMO Review Team:

> *The Fuel Cell Program Committee endorses the commercialization program developed under the Public Power Initiative and recommends that EPRI continue to explore the further development of the Commercialization Plan at the February 28 - March 1 meeting; and if the Commercialization Plan should continue to be attractive and stimulate buyer interest, that EPRI should participate at the Major Project level.*

January 16, 1990

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/FOSSIL ENERGY—WILSONVILLE RESEARCH CENTER

WITNESS

GARY A. STYLES, MANAGER, ADVANCED FUEL UTILIZATION, SOUTHERN COMPANY SERVICES, INC.

Mr. ATKINS. Gary Styles with the Southern Company Services, Incorporated?

Mr. STYLES. Thank you, Mr. Chairman.

My name is Gary Styles, and I'm manager of Advanced Fuel Utilization for Southern Company Services. In January of this year, as has already been pointed out, 50 percent of the total U.S. oil consumption came from imported sources. In 1989, imported oil accounted for 40 percent of the total U.S. trade deficit. Due to low oil prices, tighter environmental regulations, increased competition, and a desire to reduce risk capital, electric utility expansion plans to be heavily dependent on oil and gas for future power generation. This will further increase our dependence on imported oil and leave the U.S. vulnerable to higher prices and shortages.

At Wilsonville Clean Coal Research Center we are developing coal-based technologies to reduce our dependence on imported oil. Direct coal liquefaction is a technology that can be used to produce premium transportation and utility fuels from coal; it can replace petroleum.

We have just started a program and gasification and pressurized combustion to develop hot gas clean-up devices to improve the efficiency and cost-effectiveness of gasification or pressurized combustion. These technologies are compatible with combustion turbines or other advanced power generation sources that will be dependent on oil and gas and can be used to retrofit these technologies.

The objectives of our Wilsonville program are to improve the efficiency and reduce the cost of these technologies to enhance the commercialization opportunity potential of these technologies.

If you have any questions, I'll be glad to answer them at this time.

Mr. ATKINS. Your projection on coal liquefaction in terms of being commercially viable is for what time period?

Mr. STYLES. I would estimate it's between—

Mr. ATKINS. Is it the next 15 years?

Mr. STYLES. I would say 10 to 15 years is probable; it's possible within 5 to 10 years.

Mr. ATKINS. And do you have a detailed analysis of commercial viability that you've done at Southern Company?

Mr. STYLES. Not at this time. We're working on another project, studying advanced concepts and looking into more detail. The Southern Company is primarily interested in these technologies as a consumer. We depend on our partners, the Electric Power Research Institute and Amoco Oil Company, to look at commercialization opportunities.

Mr. ATKINS. Great. Thank you very much.

Mr. STYLES. Thank you.

[The prepared statement of Gary Styles follows:]

THE FY 1991 FOSSIL ENERGY BUDGET PROPOSAL

Testimony of

Gary A. Styles
Manager, Advanced Fuel Utilization
Southern Company Services, Inc.
to the
Committee on Appropriations
Subcommittee on Interior and Related Agencies
U.S. House of Representatives

March 8, 1990

Mr. Chairman and Members of the Committee:

Summary

The purpose of this testimony is to request the subcommittee's continued support for the coal research projects being conducted at the Wilsonville Clean Coal Research Center and specifically to request funding of $8.9 million for FY'91 in the Department of Energy's Fossil Energy Budget for the continued operation of the Wilsonville Advanced Coal Liquefaction Research and Development Facility.

Continuation of the coal liquefaction project is of vital importance to the energy security of the United States because we continue to be vulnerable to another oil crisis through either high prices or shortages. Direct coal liquefaction can cap the price the United States pays for imported oil and can also help reduce the trade deficit. The coal liquefaction research program at Wilsonville has resulted in significant improvements in the economics of coal-derived liquids - for example, a 57 percent decrease in cost has been realized between 1983 and the present. However, more work needs to be completed before coal-derived liquids can economically compete with petroleum.

Research on other clean coal technologies has also been approved or proposed for Wilsonville. The latest project planned for Wilsonville is a dedicated facility for testing and developing particulate control devices for gasification and pressurized combustion. Such a facility is essential before either of these technologies can demonstrate its full economic and performance potential. Coal gasification and pressurized combustion are the most promising future base load power generating technologies. Both of these technologies can be used to refuel combustion turbines which will be a major part of electric generating capacity during the next 15 years. However, the potential of these technologies must be developed to ensure that they are commercialized and accepted by the electric power industry. Coal gasification also offers the potential to co-produce liquid fuels, through direct or indirect coal liquefaction, that can be used for transportation or power generation. Co-production of liquid fuels and electricity offers the potential to minimize energy cost to the consumer, reduce risk to the investors, and enhance national energy security.

Introduction

There are a number of factors that are driving the energy industries into higher risk situations. Tighter environmental regulations and increased competition are forcing electric utilities to select technologies that are dependent on oil or natural gas. Between 1990 and 2000, it is estimated that 110,000 megawatts of electric power generating capacity will be added in the United States. Over half of this capacity will be combustion turbines or combined cycle capacity which will require premium liquid or gaseous fuels. For the short term, increased use of premium fuels will benefit the U.S. through stable electric rates and reduced emissions from power plants. However, in the long run, increased use of premium fuels will increase U.S. dependence on imported oil which can result in uncontrolled inflation and energy shortages. The best way to reduce long term risk for the U.S. is to develop coal based technologies that can compete with oil or gas. These technologies must have high efficiency, low environmental emissions, and low capital cost.

At the Wilsonville Clean Coal Research Center, we are developing coal based technologies that address a broad range of key issues that face the electric utility and transportation industries today:

- direct coal liquefaction for efficient, selective production of transportation fuels,
- hot gas cleanup from coal gasification/pressurized combustion streams for producing clean gas power generation or hydrogen, and
- advanced physical coal cleaning for low cost ash and sulfur removal.

U.S. Dependence on Imported Oil

Due to declining domestic petroleum reserves and production, increased domestic oil consumption, and increased dependence on imported oil, the United States is very vulnerable to another oil crisis. Presently, oil is the major source of transportation sector fuels and there are no available near-term alternatives.

Less than four years ago, only 27 percent of the U.S. oil supply was imported. In 1989, the foreign share was about 47 percent and is expected to rise to 50 to 70 percent in the 1990's. By the year 2000, the import oil bill is estimated to be $200 billion annually. Large oil imports not only leave the United States vulnerable to oil embargoes and energy crises, they also adversely affect the U.S. trade deficit and the ability to pay for imports. In 1989, imported oil and petroleum products accounted for $48 billion, or over 40 percent of the total U.S. trade deficit.

Coal Based Alternatives

While the United States is deficient in oil reserves and production capability, it does have abundant resources of coal and oil shale that can be used to eliminate dependence on imported oil and reduce the balance of payments deficit. Coal accounts for 80 percent of the recoverable fossil fuel reserves in the U.S. but supplies only 23 percent of the energy consumed. It is estimated that 625 billion barrels of liquid fuels can be produced from coal and oil shale, which far exceeds Saudi Arabia's present 166 billion barrels of reserves.

However, due to low oil and gas prices and tighter environmental regulations, many energy consumers, including electric utilities, are switching back to oil or natural gas. Between 1990 and 2000, it is estimated that 46,700 megawatts of combustion turbines or combined cycle capacity will be added which will require premium liquid or gaseous fuels. There is a need for coal based technologies that are compatible with combustion turbines to assure that capacity will be available when needed.

Coal gasification and pressurized combustion with hot gas cleanup are technologies that can be used to repower combustion turbines when oil and gas prices escalate. Direct coal liquefaction and coal gasification with indirect liquefaction can be used to produce high quality liquid fuels that can be used to power combustion turbines and replace oil and gas. All of these technologies address important issues related to the energy security of the United States.

In addition to addressing a broad range of issues that face the electric utility industries, these technologies also offer opportunities for integration: physical coal cleaning for efficient, inexpensive ash removal; coal gasification for fuel gas and hydrogen production; pressurized combustion for waste treatment; and coal liquefaction for liquid fuel production. According to Kurt Yeager of the Electric Power Research Institute, electric utilities will need to adapt to new pressures and market opportunities. One of the most promising new opportunities is an energy refinery that can turn coal into a broad variety of energy forms including electricity and liquid fuels. This approach will allow utilities to reduce cost to customers and reduce risk to investors by optimization of product mix. It will also increase competition in the transportation sector and reduce dependence on imported oil.

Wilsonville Projects Status

Direct Coal Liquefaction:

The purpose of the Wilsonville Advanced Coal Liquefaction R&D Facility is to reduce the cost of producing premium liquid fuels from coal. During the last year, Wilsonville demonstrated true steady-state operation of close-coupled two-stage liquefaction by maintaining activity maintenance in both reactors. Space velocity, or production rate, was increased by 80 percent which will significantly reduce the cost of producing coal-derived liquid fuels. In addition, high distillate yields from a wider range of coals, including low rank western coals, was demonstrated. Cost sharing for this project is provided by the Electric Power Research Institute, Amoco Oil Corporation, and the Southern electric system. For 1989 and 1990, this cost sharing represented about 10 percent of the project cost. Since inception, private sector cost sharing amounts to over 30 percent of project cost.

Hot-Gas Cleanup:

The project provides for the design, construction, and operation of a joint industrial/DOE facility for engineering-scale testing and development of devices to remove particulates in high-efficiency coal gasification and pressurized fluidized bed combustion power plants. This form of particulate removal must be perfected in order to utilize new high-performance gas turbines in coal-based power plants with hot gas cleanup. When successfully developed, the technology will improve the efficiency of power generation from coal by over 1000 Btu/kwh, will lower the cost of electricity by over 10 percent, and will be more readily accepted by coal-based utilities than today's combined cycle designs. The U.S. Congress has provided $5 million in funding for the initiation of this project in FY 1990. The total cost of the project is expected to be $46 million over 5 years, of which 20 percent would be funded by industry in a cooperative agreement with the DOE. The Electric Power Research Institute has pledged support for the project goals and objectives. Southern Company Services, Inc., The M. W. Kellogg Company, together with the Electric Power Research Institute have committed to share 20 percent of the cost through the engineering phase of the project, which will cost approximately $6 million.

Advanced Physical Coal Cleaning:

The purpose of the Advanced Physical Fine Coal Cleaning by Selective Agglomeration is to develop a process to remove 90 percent of the inorganic sulfur from typical eastern bituminous coals, recover 90 percent of energy content of the coal, and produce a physically stable product. Site preparation has been completed, detailed design will be completed by April, and plant startup is scheduled for June. Cost sharing for this project, which exceeds 20 percent, is provided by the Electric Power Research Institute, the Southern electric system, and the Alberta Research Council.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/FOSSIL ENERGY—WESTERN OIL SHALE

WITNESS

RAY ZAHRADNIK, PRESIDENT, OCCIDENTAL OIL SHALE, INC. STEAMBOAT SPRINGS, COLORADO

Mr. ATKINS. Ray Zahradnik, Occidental Oil Shale, Incorporated? Did I get your name right?

Mr. ZAHRADNIK. Absolutely correct, Mr. Chairman. I'm Ray Zahradnik, president of Occidental Oil Shale.

Occidental Oil Shale has been active in the development of oil shale for nearly 20 years. We have developed a versatile technology that is uniquely suited to the oil shale deposits of the western United States. This process is known as modified-in-situ processing because a large portion of the shale is left in place and retorted in the ground. We have spent over $300 million of our own money to date on the development of this technology as well as on resource acquisition, environmental monitoring, engineering studies, and socioeconomic mitigation measures. The industry as a whole has spent over $3 billion in the last 15 years.

As a result of all this work, we project that oil shale can be produced in an operative manner in small commercial facilities profitably for $30 a barrel. Now this projected cost is higher than today's world oil price, so commercial viability depends upon the real growth of oil price in the years ahead.

Most reasonable people agree that oil prices will rise in real terms. In that case, we believe that it is time to build and operate an engineering scale facility to confirm the economic viability of oil shale. Commercial plants could then be built with private financing when world oil prices warrant.

Last year the Congress appropriated $750,000 to support the development, comprehensive plan, and justification for a proposed oil shale facility involving in-situ processing of western shales as well as possible surface processing of mined materials and wastes.

In response to this appropriation, Occidental Oil Shale submitted an unsolicited proposal to the Department of Energy in December. Included in the proposal is a commitment from the State of Colorado to provide $400,000 to the plan. I have provided in my written statement a copy of Governor Roy Romer's letter committing State funds to the project. Occidental Oil Shale will match the State and Federal governments' contribution, so that the total cost of the work this year will be $2.3 million.

In January 1990, the DOE accepted the proposal and we had begun the work proposal as described in my written testimony. We consider our current work as preparation for complete execution of the described proof-of-concept project.

We expect a preliminary report of our progress to be available by June of this year. This report should confirm our estimates that the net project cost over the 7-to-10-year period will be about $200 million. Occidental is prepared to fund half of the cost. We are looking for Federal, State, and local governments to provide the other half.

Because of the long-term nature of the project, a multiyear expression of support is sought from the Federal Government. An initial appropriation of $8 million for fiscal year 1991 will, when matched by Occidental and State and local funds, complete the final design and initiate field construction and mining in 1991.

The Federal Government's share of the project would average about the same per year if costs are levelized for the term of the project. The current DOE budget for oil shale has been around $10 million a year for the last few years. Consequently, an increase to the rate of $15 to $20 million would be required to bring the oil shale budget more in line with its strategic importance to the Nation.

Such an increase has been recommended by the National Academy of Sciences in their recently completed study on U.S. transportation fuels. A commitment by this committee to initiate a proof-of-concept oil shale facility in Colorado would be entirely consistent with this recommendation and would initiate a timely response to current rising oil prices.

Although the project is proposed to be located in Colorado, it is regional in nature. We have contracted for analytical and technical support from institutions in Wyoming, and we expect to purchase a considerable amount of our equipment and other services from vendors and institutions in Utah and elsewhere in the West. We expect our results to be applicable throughout the western oil shale region.

Moreover, as stated in our proposal to the Department of Energy and provided in my written testimony, the project is open to third parties interested in testing above-ground retorting and other technologies at our Federal leasehold tract.

A proof-of-concept facility should ease the familiar boom/bust cycle associated with mineral recovery in the West. By providing for a multiyear trial period before commercialization, the project will allow local communities and counties time to develop appropriate infrastructures to deal with the emerging industry. Technical people can prosper and grow in such a program and provide an experienced cadre of personnel to operate commercial plants.

Finally, the project would contribute insight into environmental issues which, in addition to the large database already established for oil shale, would enable its development to proceed in strict compliance to and sympathy with environmental regulations.

So what I have described is a careful, deliberate, but focused program of oil shale development for the rest of this decade. There is no doubt that shale oil cannot compete with $10-to-$15-a-barrel oil. But it is also clear that the price and flow of oil is not always predictable. If we can verify our projected shale economics in a small cooperative effort, everyone will benefit. Because the resource base is large, a substantial projection capacity could be developed, that, at the very least, would contribute to making America a prudent and prepared buyer in the world oil marketplace.

Mr. Atkins. Thank you.

Can you indicate for me what the 7-to-10-year cost to the Federal Government would be of this project?

Mr. ZAHRADNIK. We feel that the total cost of the project would be $200 million net. Occidental is prepared to fund half that. We have asked that Federal, State, and local governments provide the other half. General formulas that have been discussed would be that perhaps the cost to the Federal Government would be $70 million, and the State and local governments would provide the other three.

Mr. ATKINS. Now why shouldn't this project compete with all the other oil shale projects that are funded?

Mr. ZAHRADNIK. We'd be very happy to compete this project, Mr. Atkins. If there are other oil shale companies out there wanting to move forward, we would be delighted to have that occur.

Mr. ATKINS. But, as I understand it, you're recommending a particular program designated for this one technology. Why shouldn't we just have money in general for oil shale and let everybody, with various different technologies, all compete together for that part?

Mr. ZAHRADNIK. Well, as I said, Mr. Atkins, we'd be happy to compete. I feel that the reason we make this recommendation today is we are in a unique situation. We feel that the economics associated with our technology are superior to those of others. We feel that the tract—C-b is a Federal leasehold tract. It's owned by the Government and to which Federal royalties would be paid as a result of production. Those Federal royalties would amount to $4 billion over the lifetime of the project that would return to the Federal Treasury.

We have all of our environmental permits in place, and we have spent $350 million to date on that tract, building an infrastructure, sinking shafts, building headframes, and so forth. So we feel that the project is uniquely suited to development at this time, uniquely from the point of view of having spent a lot of costs, having permits in place, having spent money. As a result, that's why we make this recommendation.

I'm not adverse to competing on the open market. I think it would take an awful lot of time and waste a lot of energy and money looking for something that may not be there.

Mr. ATKINS. Tell me what your plans are if you don't get Federal funding for the project. You obviously started into this some time ago, and you put in a substantial amount of Occidental's money. Presumably when you started you didn't have any reasonable anticipation of Federal cost sharing. What will you do if there isn't any money available?

Mr. ZAHRADNIK. If you might allow me to back up just a second—the project was developed beginning in the seventies. The Federal Government was a partner in this program. During the period of time 1978 to 1980 there was a cooperative agreement with the Department of Energy whereby the Department of Energy provided $40 million for the development of this technology, at which point in time both the Federal Government in written testimony to this committee and Occidental agreed that the next step would require a scale-up of the sort that I'm talking about.

At that time the Synthetic Fuels Corporation existed, and other mechanisms existed to find some sort of incentive or support to continue the program. When that was abolished, Mr. Atkins, we sought and obtained from the Department of Interior a suspension of our lease. Our lease is now in suspension. We did seek and obtain from the local Bureau of Land Management permission to flood the shafts and walk away.

It's not clear to me that, if we don't get funds from you or someone to continue this development, that we may not just do it. It's not economical for us——

Mr. ATKINS. You may not just do what?

Mr. ZAHRADNIK. We would have to walk away from the project at this time. We're not prepared to fund the entire cost of the program, because it is a program shared by the State and Federal governments. If we were to be successful, as I mentioned, both State and Federal governments would recover huge amounts of royalties from the production of the oil shale at this tract. So that's why we're asking for funds.

If we don't get some support at this time, our lease is in suspension; we would leave it in suspension and very likely flood the shafts and walk away for a long period of time.

Mr. ATKINS. You've already flooded the shafts?

Mr. ZAHRADNIK. No, sir, we have kept the shafts——

Mr. ATKINS. But you have permission to flood the shafts?

Mr. ZAHRADNIK. But we have permission to flood. We've kept the shafts open. We have maintained the site and carried out all of the required monitoring and development effort for just this opportunity—to carry forward the technology in a cooperative effort.

We have the encouragement and support, as I mentioned in my testimony, of the State and the local officials and, for that reason, we have been encouraged to go forward.

Mr. ATKINS. Your Federal funding ended in what year?

Mr. ZAHRADNIK. Oh, it ended in 1981.

Mr. ATKINS. Since 1981, you've expended how much money on the project?

Mr. ZAHRADNIK. Oh, since 1981? We've spent about, oh, $70 or $80 million, Mr. Atkins, for a lot of reasons. During that period from 1981 to 1986 the Synthetics Fuels Corporation was still active, and we maintained an active category of people. We maintained a staff of 150 people in Colorado in anticipation of an award from the Synthetic Fuels Corporation. In 1983, July, we signed with the Synthetic Fuels Corporation a letter of intent for $2 billion. On the expectation of culminating that letter of intent into a contract, we kept the program alive. We maintained our shafts and maintained a large staff.

Since 1986, with the collapse of the Synthetic Fuels Corporation, we did put the tract in suspension. As I say, without encouragement from you or someone, it's not clear that we can keep this effort going.

Mr. ATKINS. Tell me, this is your first formal request to this committee for funding?

Mr. ZAHRADNIK. We appeared last year, sir, as part of the——

Mr. ATKINS. Looking at planning——

Mr. ZAHRADNIK. Yes, I've described this in my written testimony. We appeared last year as part of the Oil Shale Action Committee. It was a coalition of western State and local governments and interested industrial parties. It was as a result of that request that the $750,000 was provided to the DOE for this planning study.

As I say, we have submitted a proposal to the DOE and they have accepted it. We're now underway. We hope to provide to you by June or July a progress report not only providing verification of the cost estimates, but providing some of the justification you've asked for, which will be along the lines of the words that I've described to you today.

Mr. **Atkins**. What's the cost per barrel that you'd have to have for the oil in order to make this commercially viable?

Mr. **Zahradnik**. Our current estimate is that, at $30 a barrel, we could return proper profit to our investors, $30 a barrel.

Mr. **Atkins**. What's your estimate of the risk involved with this? If we put in the amount of money that you're looking at for the 7-to-10-year period, what's your estimate of the cost or the risk that we won't find commercially-viable—won't be able to produce commercially-viable oil?

Mr. **Zahradnik**. Mr. Atkins, there are 650 billion barrels of recoverable oil in the West. That's been a lure to developers since 1918. Somewhere someplace someone is going to find the key to unlock that resource and provide it to the American public. I feel that we can do that with the program we've described. If we don't do it in our program, someone else will.

But, our program will provide a basis for everyone to participate and to proceed in the West to get this technology, whatever it may be, developed and demonstrated. No one's going to build commercial plants without a large-scale demonstration, no one.

Union Oil has spent $1.2 billion trying to develop oil shale in Colorado, $1.2 billion. The Federal Government has participated in that program by providing $50 million worth of price incentives. On the basis of that kind of exposure, no one is going to rush in in the West and build a large plant. It's just not going to happen. So they're going to base their estimates on pessimistic views of the future or concern about uncertainty in technology. I think it's absolutely necessary to build this kind of demonstration plant and let it evolve to whatever it takes to get the industry going.

I feel that banks and financiers and anyone else involved with oil shale are going to have to see something work of a substantial size before they're going to risk a billion again.

Mr. **Atkins**. Would you be willing to reduce the Federal investment, Federal participation that you're looking for in return for the Federal Government's agreeing to repay you some of your costs that would be invested through the income that would come from the leasehold?

Mr. **Zahradnik**. In a minute.

Mr. **Atkins**. Would you do it down to zero?

Mr. **Zahradnik**. Yes, sir, if you would do it down to zero. That's a mouse and an elephant. I'm telling you there's $4 billion worth of royalties, so I've got a lot of leeway.

Mr. **Atkins**. I understand, but you're saying you're certain enough of the technology that if the Federal Government were to say to you, "If you invest a certain way, whatever, that we will refund to you the cost of your investment?"

Mr. **Zahradnik**. Yes.

Mr. **Atkins**. In other words, I'm not saying that we would eliminate the Federal interest in the leasehold.

Mr. **Zahradnik.** Well, certainly the percentages would be negotiable, but in a minute, yes. I think that because there are such substantial amounts of royalties that would be paid over time, that we would be willing to do that. I don't think you'd do it on a one-to-one basis, Mr. Atkins, simply because of the time value of money, but I think that certainly some basis for that could be worked out.

Mr. **Atkins.** Could you, for the record, submit what in your estimation would be a fair tradeoff that would involve, then, no direct Federal investment——

Mr. **Zahradnik.** Yes. Would——

Mr. **Atkins** [continuing]. Of money, but rather a Federal agreement to forego some portion of the leasehold.

Mr. **Zahradnik.** Right; you'd like me to make you an offer?

Mr. **Atkins.** Make us an offer that would be in the public interest.

Mr. **Zahradnik.** Well, it also has to be in our interest, as you know.

Mr. **Atkins.** I appreciate that, but I'd like an offer that we could look at as a serious starting point.

Mr. **Zahradnik.** Yes. Yes, I think that's a good idea, by the way.

Mr. **Atkins.** In other words, don't give me a mouse and an elephant. Give me——

Mr. **Zahradnik.** I see.

Mr. **Atkins** [continuing]—A deer mouse and a house mouse.

Mr. **Zahradnik.** Certainly, I shall do that. Thank you.

Mr. **Atkins.** Thank you very much.

I will turn the gavel back over to the chairman.

[The prepared statement of Raymond Zahradnik follows:]

OXY

OCCIDENTAL OIL SHALE, INC.

P.O. Box 880408 1250 S. Lincoln Avenue, Suite I-5 Steamboat Plaza
Steamboat Springs, Colorado 80488
(303) 879-3807

Raymond L. Zahradnik
President — Chief Executive Officer

March 26, 1990

The Honorable Sidney R. Yates
Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
B-308 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

At the March 8, 1990 hearing of your Subcommittee, I presented testimony encouraging a cooperative Government/Industry effort to build and operate a proof-of-concept facility involving Modified-In-Situ processing of Western shale.

The project would be located at Federal Leasehold Tract C-b and would last 7-10 years at an estimated cost of $200 million. Occidental Oil Shale, Inc. (OOSI) is prepared to fund half of this net cost if federal and state governments provide the other half.

In the course of my testimony, Congressman Atkins asked me to propose a mechanism whereby the Government's share of the project funds could be provided by a reduction in royalty payments during the eventual commercial production of shale oil at the C-b Tract. Under the current lease (C-20341), the lessee shall pay the lessor a royalty on oil shale extracted according to the provisions of the lease, which provisions I have appended to this letter.

If the Government wished to reduce this royalty as a means of promoting a proof-of-concept project at Tract C-b, I propose that the following mechanism be considered.

1. For each dollar expended by OOSI on the proof-of-concept facility a credit of five dollars will be established in an account identified as the Royalty Reserve Account.
2. For the calendar year in which the Royalty Reserve is established and for each calendar year thereafter, the Secretary of Interior shall determine the combined average value per barrel of all crude oil and crude shale oil produced in the States of Colorado, Utah, and Wyoming. The Royalty Reserve Account applicable to the second and each succeeding calendar year shall be adjusted by an increase or decrease of the same percentage as the

percentage of increase or decrease in the combined average value for that calendar year as compared with the combined average value for the calendar year during which the funds were credited.

3. Upon the commencement of commercial production, the royalties required by Lease C-20341 will be waived and an equivalent amount be paid to OOSI by the Government with a commensurate reduction in the Royalty Reserve Account until such time as the Royalty Reserve Account is depleted.

I realize that there may be other ways to use royalty reduction and production incentives as a means of stimulating oil shale production. I would be glad to discuss my specific proposal or other variations with you, your colleagues or your staff at your convenience.

Very truly yours,

Ray Zahradnik

Raymond L. Zahradnik

RLZ:ds
Enclosure
cc: The Honorable Chester G. Atkins
The Honorable Robert C. Byrd
Mr. Robert S. Kripowicz
Mr. Charles D. Estes

the development of the Leased Deposits and not credited against the fourth bonus installment, but not any expenditures attributable to the preparation of a development plan under section 10. Upon the credit of an expenditure, the Lessee shall be relieved of the duty of paying the equivalent amount of the fifth bonus installment. The Mining Supervisor shall have the duty of determining whether expenditures credited by the Lessee are properly attributable to such operations, and, if the Mining Supervisor determines that any reported expenditure is not attributable to such operations, the Lessee shall not receive credit for that expenditure.

Section 6. Rentals

The Lessee shall pay the Lessor an annual rental which shall be in the amount of 50 cents for each acre or fraction of an acre of the Leased Lands. The Lessee shall pay the rental for each subsequent Lease Year on or before the first day of that Lease Year. Rentals for any Lease Year shall be credited by the Lessor against any royalty payments for that Lease Year.

Section 7. Royalties

(a) The lessee shall pay to the Lessor a royalty on all Oil Shale extracted by the Lessee from the Leased Lands which is either processed or sold by the Lessee. The royalty on Oil Shale shall be computed separately for shale oil and for other minerals as follows:

(1) The royalty on shale oil shall be computed on the basis of the shale oil content of the Oil Shale; the method of computing the royalty shall depend upon whether the Oil Shale is extracted by mining methods or processed by in situ methods.

(i) If the Oil Shale is extracted by mining methods, the Lessee shall pay the Lessor a basic royalty rate of 12 cents on every Ton of Oil Shale which the Lessee either processes under this Lease either on or off the Leased Lands or sells prior to processing. This basic royalty rate shall be subject to the following adjustments:

(A) If the shale oil content of the Oil Shale mined is less than 30 gallons per Ton, the basic royalty rate per Ton of Oil Shale shall be reduced by one cent for each gallon or fraction thereof that the shale oil content is less than 30 gallons per Ton, but in no event shall the royalty rate be less than four cents per Ton. If the shale oil content of the Oil Shale mined is more than 30 gallons per Ton, the basic royalty rate per Ton shall be increased by one cent for each gallon or fraction thereof that the shale oil content is more than 30 gallons per Ton.

(B) For the calendar year in which the Effective Date occurs and for each calendar year thereafter, the Secretary shall determine the combined average value per barrel of all crude oil and crude shale oil produced in the States of Colorado, Utah, and Wyoming. The basic royalty rate applicable to the second and each succeeding Lease Year shall be adjusted by an increase or decrease of the same percentage as the percentage of increase or decrease in the combined average value for the calendar year during which that Lease Year begins as compared with the combined average value for the calendar year during which the previous Lease Year began. However, in no event shall the basic royalty rate for shale oil be decreased to less than 4 cents on every Ton of Oil Shale mined under the lease.

(C) The shale oil content of the Oil Shale shall be determined either by the Modified Fischer Assay method or by such other method as the Lessor and the Lessee adopt, and the royalty shall be based on the monthly average of shale oil content of all Oil Shale processed under this lease or transferred from the Leased Lands for processing or sale by the Lessee.

Computations of quantities, assays and royalties shall be rounded to the nearest hundredth, or within the limits of the standard deviation for commercial testing equipment as approved by the Mining Supervisor.

(ii) (A). If the Oil Shale is processed by in situ methods, royalty shall be paid at a basic royalty rate of 12 cents per Ton. The number of Tons processed shall, for purposes of computing royalty, be determined by: (I) establishing through calorimetric tests designated by the American Society for Testing and Materials as "Standard" or "Tentative," the total gross heat of combustion in BTUs of all oil and gas products at the well head, adjusted downward by the total gross heat of combustion in BTUs of combustible fluids (gases or liquids) injected as heat carriers, but not for fuel purposes, into the formation being processed; (II) dividing the adjusted total gross heat of combustion in BTUs by 152,700 BTUs (shale oil and gas recovered by Modified Fischer Assay of Oil Shales, containing approximately 30 gallons of shale oil per Ton, has a heating value of 152,700 BTUs per gallon of shale oil and associated gas), to arrive at the equivalent number of gallons of shale oil produced; and (III) dividing the equivalent number of gallons of shale oil produced by 30, to arrive at the number of Tons of Oil Shale processed by in situ methods.

(B) The basic royalty rate applicable to shale oil from Oil Shale process by in situ methods shall be adjusted in the same manner as that provided in paragraph (a)(1)(i)(B) of this section for the adjustment of the basic royalty rate applicable to shale oil processed from Oil Shale extracted by mining methods.

(C) Computations of quantities, assays and royalties relating to tonnage of Oil Shale shall be determined by the same standards as used under Section 7 (a)(1)(i)(C).

(2) The Lessee shall also pay a royalty on all minerals other than shale oil contained in Oil Shale produced from the Leased Deposits which the Lessee processes, either on or off the Leased Lands, or sells. This royalty shall be computed on the basis of the gross value of the other minerals at the point of shipment to market, and shall be at a rate of 3 per centum for the first ten Lease Years, 4 per centum for the eleventh year through the fifteenth Lease Year, and 5 per centum beginning with the sixteenth Lease Year.

(b) The Lessee shall determine accurately, on the Leased Lands, the weight or quantity and quality of all Oil Shale produced from the Leased Deposits by each method used and shall enter the weight or quantity and quality thereof accurately in books which shall be kept and preserved by the Lessee for such purposes.

(c) Payments for royalties due under this lease shall be payable monthly on or before the last day of the calendar month following the calendar month in which the Oil Shale is processed or, if it is not processed, is sold.

(d) If the Lessee shall show that compliance with the requirements for environmental protection prescribed in the detailed development plan (or amended, supplemental, or partial plan) required under section 10 of this lease, and as approved in accordance with the regulations in 43 CFR Part 23 and 30 CFR Part 231, now or hereinafter in force, or imposed by legislation enacted after the effective date of that plan (or of an amendment or supplement to that plan), has engendered or will engender extraordinary costs in an amount which is in excess of those in the contemplation of the parties, as determined by the Lessor, on the effective date of that plan (or amendment or supplement to that plan),

the Secretary, if he deems it desirable, may, in order to offset such costs, adjust the royalties that would otherwise become due and payable thereafter under subsection (a) of this section by allowing a credit against those royalties in such an amount, and for such a time as he determines is warranted in the circumstances.

(e)(1) For the sixth and each succeeding Lease Year the Lessee shall pay a minimum royalty which, to the extent that royalties on production during that Lease Year in that amount have not been previously paid, shall be due and payable on the Anniversary Date at the end of that Lease Year. For the sixth Lease Year, the Lessee's minimum royalty shall be equal to the royalty due on shale oil under subsection (a)(1)(i) of this section on an annual production rate of 616 Tons of Oil Shale containing 30 gallons of shale oil per Ton of Oil Shale. The annual production rate for computing minimum royalty for each subsequent Lease Year up to and including the fifteenth Lease Year shall increase in an amount of 616 Tons of Oil Shale per year for each subsequent Lease Year; for the fifteenth and each subsequent Lease Year the annual rate shall be 6,160 Tons of Oil Shale. The Secretary may excuse the Lessee from compliance, in whole or in part, with the requirements of this paragraph (1) of subsection (e) during any year in which the Lessee is prevented by circumstances over which he has no control from implementing a development plan submitted under Section 10 of this lease.

(f) If the Lessee enters into production prior to the eighth Anniversary Date, and the royalty due in the eighth or any previous Lease Year exceeds the minimum royalty due under subsection (e)(1) of this section for that Lease Year, the Lessee shall be relieved from the payment of one-half of the difference between the actual royalty due for that Lease Year and the figure set in subsection (e)(1) for minimum royalty due for that Lease Year. This relief from the payment of royalty shall be in addition to any crediting of expenditures under subsection (e)(2) of this section, but no crediting of expenditures against minimum royalty shall reduce the figure for minimum royalty used in the preceding sentence.

Section 8. Payments

All bonus installments shall be paid to the appropriate State Office of the Bureau. All rental payments shall be made to the appropriate State Office of the Bureau until this lease enters a producing status or minimum royalty is required to be paid on it; thereafter the rentals and royalties shall be paid to the appropriate Mining Supervisor with whom all reports (including any reports on expenditures deductible under section 5) concerning operations under the lease shall be filed.

STATEMENT
ON
OIL SHALE DEVELOPMENT
IN THE
UNITED STATES

RAY ZAHRADNIK
PRESIDENT
OCCIDENTAL OIL SHALE, INC.

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PRESENTED TO

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
B-308 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, D.C. 20515

MARCH 8, 1990

INTRODUCTION

Good Morning, Mr. Chairman. I am Ray Zahradnik, President of Occidental Oil Shale, Inc. (OOSI).

Occidental Oil Shale has been active in the development of oil shale for nearly 20 years. We have developed a versatile technology that is uniquely suited to the oil shale deposits of the Western United States. This process is known as Modified-In-Situ (MIS) processing because a large portion of the shale is left in place and retorted in the ground. We have spent over $300 million of our own money on the development of MIS as well as on resource acquisition, environmental monitoring, engineering studies and socio/economic mitigation measures. Private industry as a whole has spent over $3 billion on oil shale projects in the West over the last 15 years.

RATIONALE FOR AN OIL SHALE PROGRAM

The United States has the largest oil shale deposits in the world, estimated to contain over 1000 billion barrels of recoverable oil. The majority of this oil is found in the thick, deep seams of the West which are accessible primarily by underground mines which are wet and gassy. These deposits can be recovered most economically and efficiently when MIS processing is combined with Above Ground Retorting (AGR). We estimate that such combined processing can produce upgraded shale oil in relatively small commercial plants for less than $30/bbl. Unocal is developing AGR technology on a commercial scale at their Parachute Creek facility. Comparable development of MIS technology is needed to realize the $30/bbl projected commercial economics.

Confirmation of the viability of MIS technology and the validity of the combined process cost estimates would greatly expand U.S. oil reserves. Since most of the Western oil shale belongs to the Federal Government, production of these reserves at even modest royalties would provide many billions of dollars to the U.S. Treasury. Further, private development of oil shale is unlikely to occur in any timely way because most investors will base their decisions on pessimistic estimates of the cost.

But, as I remarked earlier, we believe that small commercial plants using combined MIS and AGR processing will produce a premium quality syncrude for $30/bbl. Larger plants will do even better.

This cost is higher than today's world oil price, so commercial viability depends upon the real growth of oil prices in the years ahead. Most reasonable men agree that oil prices will rise in real terms. In that case, isn't it more valuable to find out what the costs of producing shale oil really are rather than dismissing shale with trite and self-serving arguments that it's too expensive. Isn't a policy of assessment better than a policy of complacency?

SPECIFIC PROPOSAL

We have, in the United States, a plan for determining the most reasonable cost of shale oil and for determining other considerations ascribed to its development. At the urging of the Associated Governments of Northwest Colorado in 1986, the Oil Shale Action Committee was formed as a coalition of interested industrial companies and state and local government officials in Utah, Wyoming and Colorado. This coalition advised Congress to appropriate funds beginning in FY 90 for the design, construction and operation of a proof-of-concept facility in the West. Occidental has joined this coalition and has offered the use of its C-b tract as a site for the facility. (The C-b site, by the way, was one of the six tracts included in DOI's Prototype Lease Program). We estimate that a proof-of-concept facility on our site using our MIS technology would take 3 years to design and build, and another 4-7 years of operation to complete the testing. At that time we expect to expand the facility to a combined MIS/AGR process commercial plant with private funding.

The Oil Shale Committee of the Rocky Mountain Oil and Gas Association (RMOGA) passed a resolution of support for the project, which I have appended to my statement. The membership of this Committee includes most of the major oil companies that have oil shale holdings.

I have also attached a letter of support for the FY 1990 appropriation from Governor Roy Romer of Colorado.

The U.S. Congress appropriated $750,000 for FY 1990 to support the development of a comprehensive plan and justification for a proposed oil shale facility involving in-situ processing of western shales as well as possible surface processing of mined materials and wastes.

In response to this appropriation, Occidental Oil Shale, Inc. submitted an unsolicited proposal to the DOE in December. Included in the proposal is a commitment from the State of Colorado to provide its share of the costs by means of a grant from the Office of Impact Assistance to the Associated Governments of Northwest Colorado, who will in turn contract with OOSI for transfer of the $400,000 as the State's contribution to the completion of the Plan. I have attached a copy of Governor Roy Romer's letter committing the

$400,000 to the Project. OOSI will match the State and Federal Governments' contribution, so that the total cost of the work will be $2.3 million.

In January, 1990 the DOE accepted the proposal and the scope of work, which includes the following activities:

- Preliminary Engineering, Design and Cost Estimate
- CFBC Design Parameter Confirmation
- Permit Identification and Application Preparation or Updating, as appropriate.
- Shaft Facilities Review
- Mine Plan Finalization
- Federal Tract C-b Lease Requirements
- Financial Plan Finalization
- Marketing Plan Development
- Management Plan Finalization
- QA/QC Plan Finalization
- Water Management Plan Finalization
- Final Report
- Project Management

We consider our current work as preparation for complete execution of the described demonstration project.

We expect a preliminary report on this work to be available by June of this year. The report should confirm that the net project cost over a 7-10 year period is estimated to be about $200 million. OOSI is prepared to fund half of the cost. We expect the report to contain sufficient justification for the Federal Government to join with us in carrying out the project.

Due to the long-term nature of the project, a multi-year expression of support is sought from the Federal Government. An initial appropriation of $8-$10 million for FY 91 will, when matched with Occidental and state and local funds, complete the final design and initiate some field construction and mining in 1991. The Federal Government's share of the project would average about the same per year if costs are levelized for the term of the project. The current DOE budget for oil shale has been around $10 million per year for the last few years. Consequently, a modest increase to the rate of $15-$20 million would be required to bring the oil shale budget more in line with its strategic importance to the nation.

Such an increase has been recommended by the National Academy of Sciences in their recently completed study: "U.S.

Production of Liquid Transportation Fuels: Costs, Issues and Research and Development Directions."

A commitment by this Committee to initiate a proof-of-concept oil shale facility in Colorado would be entirely consistent with this recommendation and would initiate a timely response to current rising oil imports.

Although the project is proposed to be located in Colorado, it is regional in nature. We have contracted for analytical and technical support from WRI in Wyoming. We expect to purchase a considerable amount of our equipment and other services from vendors and institutions in Utah and elsewhere in the West, and we expect our results to be applicable through the Western Oil Shale Region. Moreover, the project is open to third parties interested in testing above ground retorting and other technologies at Tract C-b.

A proof-of-concept facility should ease the familiar boom/bust cycle associated with mineral recovery in the West. By providing for a multi-year trial period before commercialization, the project will allow local communities and counties time to develop appropriate infrastructures to deal with the emerging industry. Technical people can prosper and grow in such a program and provide an experienced cadre of personnel to operate commercial plants.

Finally, the project would contribute insight into environmental issues which, in addition to the large data base already established by Unocal, should enable oil shale development to proceed in strict compliance to and sympathy with environmental regulations.

So what I have described is a careful, deliberate but focused program of oil shale development for the rest of this decade. There is no doubt that shale oil cannot compete with $10-15/bbl oil. But it is clear that the price and flow of oil is not always predictable. If we can verify our projected shale economics in a small cooperative effort, everyone will benefit. Because the resource base is large, a substantial production capacity could be developed, that, at the very least, will contribute to making America a prudent and prepared buyer in the world oil marketplace.

STATE OF COLORADO

EXECUTIVE CHAMBERS
136 State Capitol
Denver, Colorado 80203-1792
Phone (303) 866-2471

Roy Romer
Governor

September 19, 1989

The Honorable Robert C. Byrd
U.S. Senator
Subcommittee on Interior and
Related Agencies, Chairman
Committee on Appropriations, Chairman
SH-311 Hart Senate Office Building
Washington, D.C. 20510-4801

Dear Senator Byrd:

I am writing to ask your continued support for the funding of the Western States Enhanced Oil Shale Recovery Program. During the past two years, I have worked closely with members of the Oil Shale Action Committee representing state and local governments in Colorado, Wyoming and Utah, and representatives of the oil shale industry. This committee ensures the timely development of oil shale and mining technologies and the development of a demonstration facility.

Senators Tim Wirth and Bill Armstrong and Representative Ben Nighthorse Campbell, the Utah and Wyoming delegations, and the House Appropriations Subcommittee on Interior have consistently supported this program. As a result, the U.S. Department of Energy has funneled nearly $1 million into the development of oil shale by-products to improve its economic viability and the associated mining and retorting technologies.

I am also asking your support for additional funding to begin a cooperative federal-state-industry demonstration project beginning with the fiscal year 1990 budget. The purpose would be to test modified in-situ oil shale mining methods and processing technologies on C-b Federal Oil Shale Tract in Northwestern Colorado. Presently, the House Appropriations Committee has appropriated $500,000 to this effort. The Senate Budget Committee has appropriated $3.5 million. If the Conference Committee supports the Senate appropriation, it will trigger approximately $10 million in industry, state and local, and federal funds to do the engineering design for this 10 year project.

This effort will be critical in the development of western oil shale. A systematic effort by the public and private sectors will avoid the crash programs of the late 1970s, while assuring that the fuel will be available when needed.

I look forward to working with you, Congress, and energy Secretary James Watkins on this effort.

Sincerely,

Roy Romer

Roy Romer
Governor

RR:rc

1860 Lincoln Street, Suite 404 • Denver, Colorado 80295
303/860-0099

July 6, 1989

Mr. J. Allen Wampler
Assistant Secretary
Fossil Energy, FE-23
U.S. Department of Energy
Washington, D.C. 20545

Dear Mr. Wampler:

The Oil Shale Committee of the Rocky Mountain Oil and Gas Association would submit the following in response to the DOE request for public comments on Improving the Economic Competitiveness and Increased Utilization of Western Fossil Energy Resources. The Committee supports continued government research in oil shale mining and processing. We believe that the Department of Energy has a vital role to play in maintaining and advancing the nation's expertise in this area which perhaps can be supplemented with input from industry. The importance of government programs in the development of oil shale mining and processing techniques has increased in recent years as fluctuations in oil prices have exacerbated the financial risks of oil shale development, thus discouraging many in the private sector from continuing any significant effort in the area.

In the Western United States it is estimated that over 650 billion barrels of oil can be recovered economically at oil prices in the $30 range (1989$). This should be sufficient justification to keep oil shale at least on a par with coal conversion in policy deliberations seeking options for future sources of liquid transportation fuels.

Past failures to develop a viable oil shale industry can be traced, in part, to the tremendous loss in knowledge, information, and momentum which resulted when research activities were halted between periods of accelerated interest in synfuels. At the onset of each new mobilization effort, much of the organizational and personnel infrastructures must be reassembled so that research and development inevitably begins again with less knowledge than was available when the last campaign was terminated. These "gaps" in development are particularly damaging, because the loss in continuity and momentum cannot easily be compensated for by either a rapid change in government policy or massive infusions of funds. Further, the gaps in development mean that scientists and engineers are denied the lead time necessary to phase in advanced oil shale technologies. Instead they are forced to choose existing processes which are not fully developed to meet the need for rapid commercialization.

Many of our member companies have been active in the evaluation of oil shale as a potential source for commercial fuels since the mid 1970's, and some much longer. The ongoing program has addressed resource base potential, mining, recovery and upgrading technologies, possible environmental impacts, process and project economics, and a variety of other issues relevant to oil shale commercialization.

We believe that continuing, steady D.O.E. programs will maintain the technology knowledge base required to improve the state-of-art in shale oil recovery techniques. Advancing shale oil technologies could have a meaningful impact on the availability and price stability of the nation's energy supply, and industry input could aid in achieving that advance. Some continuing effort aimed at converting the vast U.S. oil shale resources into useable fuels is in the nation's interest.

If you have any questions about the Committee on Oil Shale's position, please feel free to contact me.

Sincerely,

Earl York
Chairman
Committee on Oil Shale

cc: Governor Romer
Chips Barry
Senator Bill Armstrong
Senator Tim Wirth
Representative Hank Brown
Representative Ben Nighthorse Campbell
Representative Joel Hefley
Representative Dan Schaefer
Representative Pat Schroeder
Representative David Skaggs

RESOLUTION

ROCKY MOUNTAIN OIL AND GAS ASSOCIATION

THE COMMITTEE ON OIL SHALE

ADOPTED JULY 6, 1989

This Committee supports the concept of a cooperative Federal-State-Industry Proof-of-Concept (Demonstration) Oil Shale project to test new oil shale production and processing technologies. The Committee further encourages the Appropriations Committees of Congress to provide Federal funds to the DOE for support of such a project, beginning in FY 1990.

STATE OF COLORADO

EXECUTIVE CHAMBERS
136 State Capitol
Denver, Colorado 80203-1792
Phone (303) 866-2471

Roy Romer
Governor

November 29, 1989

James D. Watkins
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Secretary Watkins:

I am writing to express my support for the demonstration in-situ oil shale project on the C-b Oil Shale Tract in Northwest Colorado.

Colorado has been involved with a variety of oil shale activities since the inception of the Oil Shale Action Committee. Our agenda has been two-fold. First, we believe it is necessary to establish an economic enhancement program for western oil shale which includes by-product studies and improved mining and processing technologies. Second, we believe it is necessary to continue technology development through a demonstration project. This step is critical to the establishment of oil shale as an important element of the National Energy Strategy that your department is developing.

Congress has supported this effort by appropriating nearly $900,000 for the enhancement program and $750,000 to develop a comprehensive plan and justification for a demonstration project.

The first-year funding for the demonstration project should complete the preliminary engineering design for the project. Colorado, through the Energy Impact Fund, is contributing $400,000 to this first-year effort. This is in addition to the congressional appropriation and $1.15 million to be contributed by Occidental Oil Shale, Inc.

In addition to this initial support, Colorado is committed to the full, 10-year life of the project. Over the next several months, we will be conducting a financial analysis of the project through the Colorado Department of Local Affairs and the Associated Governments of Northwest Colorado. The goal of this study is to quantify the revenues generated by the project at the state and local level. This will aid us in determining the types and levels of financial incentives which could be made available annually for the life of the project. This study will be completed in February 1990.

James D. Watkins
November 21, 1989
Page Two

We will deliver this information to you and the appropriate congressional committees during budget deliberations next spring. It is our hope that the administration and Congress will prepare a similar financial strategy for the entire project.

We look forward to working with the Department of Energy and Occidental Oil Shale Inc. on this very important project for Northwest Colorado. The Colorado Department of Natural Resources will be the lead state agency in this effort.

Sincerely,

Roy Romer

Roy Romer
Governor

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY FOSSIL/ENERGY—EASTERN OIL SHALE

WITNESS

FRANK DERBYSHIRE, DIRECTOR, UNIVERSITY OF KENTUCKY, CENTER FOR APPLIED ENERGY RESEARCH

Mr. DICKS. Dr. Frank Derbyshire, director, University of Kentucky Center for Applied Energy Research.

Mr. DERBYSHIRE. Good morning, Mr. Chairman, members of the subcommittee.

My name is Frank Derbyshire. I'm the director of the University of Kentucky's Center for Applied Energy Research. My testimony is in request of continuing financial support for research and development in the eastern shale. I think in several respects this will differ a little from the testimony given by the previous speaker.

Specifically, we're asking for an $8.5 million program for eastern oil shale in fiscal year 1991. This includes $.35 million for scale-up of the retorting technology being developed by the Institute of Gas Technology. This overall program, this particular program, will involve several universities in the eastern oil shale States.

Also, $1.15 million for further development of this process, $375,000 for continued development of the technology known as KENTORT II by the University of Kentucky, and $380,000 for environmental research on retorted oil shale.

In support of this request, I would like to provide some information about eastern oil shale. The eastern shale deposits are located in the States of Kentucky, Ohio, Alabama, Tennessee, and Indiana. Both the eastern and western deposits are very large resources which are important future sources of fuels and chemicals.

Over the last 10 years there's been a considerable effort in research and development of the eastern oil shale whereby the financial support has been provided from the United States Department of Energy, individual State governments, private industry which I will name: Phillips Petroleum, the Mobil Foundation, Cleveland Cliffs Research Foundation, Chevron Oil Company, and Breckenridge Minerals.

To illustrate the level of commitment, the State of Kentucky alone has invested over $5 million, and all of this effort has been cost-shared at about the 50 percent level. The research work has been conducted by universities in the oil shale states and also by universities in Illinois, Pennsylvania, and Michigan; in addition, by private industry and other organizations, among which I make particular note of the Institute of Gas Technology who have been prominent in providing much of the leadership in this work.

Over the last decade we've acquired a great deal of improved understanding of eastern oil shale and how to develop it. Perhaps one of the most important milestones was the recognition that the process technologies applied to western shale are quite unsuitable for eastern shale, with the result that alternative process methods have had to be developed. Two appropriate technologies are being developed by ourselves and the Institute of Gas Technology.

Speaking for our own technology, we have developed a unique concept which employs three integrated fluidized bed reactors. Without going into detail on this process, what we achieve is, first, a high oil yield; secondly, a hydrogen-rich gas which can be used as a fuel or chemical feedstock. The recovery of sulfur is a valuable byproduct instead of its release as a pollutant—a spent shale with little residual carbon or sulfur, which minimizes problems with disposal in respect to the environment.

A further relevant fact is that eastern shale rock is primarily silicate whereas the western shale rock is predominantly carbonate. During retorting, the carbonate rocks can release carbon dioxide, which is a greenhouse gas, and this is not a problem which is encountered with eastern shale.

We've also found significant improvements in process economics. A recent study by Foster Wheeler Corporation and the United States Department of Energy found that using a technology similar to our own, eastern shale oil can be produced at a cost of about $35 per barrel. On this basis, it was found that this is about $2 a barrel cheaper than the most economic scenario for western shale. This is of the same order as the currently-projected costs for the derivation of liquids from coals.

Other factors which are relevant to the development of eastern oil shale are that the necessary infrastructure and markets for the products are already in place; labor is available for mining and processing, and there is a need for employment in these regions; and the eastern shale can be surfaced mined, which minimizes environmental disruption and facilitates reclamation.

Our last point, as you just heard, concerns the opinion which proposes channeling all of the oil shale funds into a single demonstration project for western shale. We don't believe that this is warranted by our present state of development and understanding, and feel that both resources merit development.

To recapitulate, we're requesting support of $8.5 million. Thank you for allowing me the opportunity to testify.

Mr. DICKS. That was an excellent presentation. We can see that there is a lot of merit in looking in both directions. Thank you.

[The prepared statement of Mr. Frank Derbyshire follows:]

Testimony on Eastern Oil Shale Research Before
The Subcommittee on Interior
House Committee on Appropriations

By
Dr. Frank Derbyshire, Director
University of Kentucky, Center for Applied Energy Research

My testimony addresses the Department of Energy's non-nuclear research and development appropriations. In particular, I would like to present to the subcommittee considerations which support the continuance of research and development of Eastern U.S. oil shale for a total of $8.5 million dollars for the Fiscal Year 1991.

The Eastern Oil Shale Resource. Eastern oil shale is a major energy resource that can play a substantial role in meeting the energy and chemical feedstock needs of the nation throughout the next century. In a study of this resource the U.S. Geological Survey found shale representing over 400 billion barrels of oil as measured by the Fischer Assay method, with another possible 2600 billion barrels of shale from extension of known deposits. Of course the resource cannot all be recovered. However, even considering only the richest and most easily accessible shale, the resource is still enormous. For example, we conducted an intensive resource assessment of the shale in Kentucky considering only very rich shale that is near or on the surface (which could be mined inexpensively) and determined in place over 16 billion barrels of recoverable oil. These values are much higher when recently developed technologies, which can produce oil above Fischer Assay yield, are considered.

Research Progress Over the Past 10 Years. Prior to about 1980, Eastern oil shale was considered a "lean" resource with limited economic potential. This was due to the reliance on the Fischer Assay, which shows that Eastern oil shale will produce about half of the oil per unit of organic carbon, or heating value, compared to Western U.S. oil shales. The Fischer Assay is only a laboratory test and does not estimate the actual oil yield obtainable by a specific technology.

Substantial progress has been made over the past ten years in our understanding of the physical and chemical nature of Eastern oil shale. This has been a result of an intensive research program carried out by the U.S. Department of Energy; agencies of state government, such as the Kentucky Energy Cabinet and state geological surveys; universities in Kentucky, Ohio, Indiana, Tennessee, Alabama, Michigan, Illinois and Pennsylvania; and private interests such as Phillips Petroleum, Southern Pacific Petroleum Companies and the Institute of Gas Technology, which has provided much of the leadership for the research effort over the past decade.

Kentucky has played a major role in supporting and funding this effort. For example, we have spent over $1.3 million for pilot plant studies and well in excess of $4 million dollars in our University laboratories, such as the CAER. The State support has been added to by private interests; the University of Kentucky has received almost a half million dollars in grants from organizations such as Phillips Petroleum, the Mobil Foundation, Cleveland-Cliffs Research Foundation, Chevron Oil Company and Breckinridge Minerals, Inc. The U.S. Department of Energy has also supported our effort by matching almost dollar for dollar.

Kentucky is one of the hosts of the Eastern Oil Shale Symposium, which has chronicled the level of research expended in understanding this resource. The tenth meeting will be held this November and to date over 400 technical papers have been presented and published in the symposium proceedings.

As a result of this research we have learned that the chemistry of Eastern oil shale is different from that of the Western U.S. Its organic matter or "kerogen" which is the source of the oil is more like that of the oil shales of Brazil and Israel, which are currently being commercially developed. Because the kerogen is different, it requires processing conditions which cannot be provided by the technologies designed for other shales. The temperature for maximum oil yield is higher and the shale oil must be collected differently to produce the optimum yields and maximize process economics.

This basic research has lead to the development of new technologies, tailored to the unique characteristics of Eastern oil shale. These technologies are capable of producing higher than Fischer Assay oil yields; utilizing almost the entire energy value of the resource; delivering additional products, such as sulfur, ammonia, urea, high-Btu gas, condensable hydrocarbons such as butane, and methanol precursors.

The CAER, in partnership with the U.S. DoE, is the developer of the KENTORT II technology. KENTORT II is a multi-staged fluidized bed retorting system which operates at atmospheric pressure and is capable of producing oil from Eastern shale at yields well above Fischer Assay. KENTORT II takes the residual carbon which does not convert directly into oil and gasifies it in a second integrated fluid bed stage. Here a medium-Btu hydrogen-rich gas is produced which can be processed into methanol or used to upgrade the shale oil. It is here also that most of the sulfur is removed as a hydrogen sulfide gas and can later be processed to elemental sulfur, a valuable by-product. A third fluidized bed combusts the shale to provide heat for the process.

KENTORT II was been designed from its inception to have outstanding environmental performance. The abatement of pollutants, primarily sulfur, is engineered directly into the reactor design, instead of being relegated to downstream scrubbing systems. Turning a pollutant into a saleable by-product is inherently cost effective. The removal of sulfur in the retort also avoids problems with acid generation in the disposal area, facilitating reclamation of the mined lands.

We have completed a three year study of the KENTORT II technology in a 5-lb/hr system and confirmed the feasibility of the concept. We are currently beginning a second phase effort which will process 50-lbs/hr. This system will utilize conditions which would be employed in a commercial process configuration.

Ours is not the only technology which has been developed in recent years. For example, using quite a different approach, the Institute of Gas Technology of Chicago, Illinois has pioneered a fluidized bed reactor which operates under pressure and is capable of producing oils yields of two to three times that of Fischer Assay.

Our research is not limited to process development. We have conducted extensive environmental research in the elemental leaching, geotechnical and reclamation characteristics of retorted Eastern shales and related materials. We are currently developing, with a group at the University of Wyoming, a large environmental study of the characteristics of the retorted shales produced by these technologies.

The Economics of Eastern Oil Shale Development. Research progress means little if we do not reduce the costs of producing energy from the resource and this has been achieved. An intensive economic study performed by the Foster Wheeler Corporation and the United States Department of Energy was completed in 1989. The study found that Eastern oil shale could be economically produced at a cost of $34.96 per barrel, using retorting technology similar to KENTORT II. This is 50 to 80% lower than 10 years ago and there is still much room for improvement. The study also concluded that Eastern shale oil could be produced for $1.87 per barrel less than the least expensive Western shale oil scenario. Thus our research has put us ahead of other U.S. oil shales in the economics of development.

There are other economic, social and environmental factors which favor Eastern oil shale development. I will mention some.

Infrastructure Costs. Sufficient infrastructure in the form of roads, utilities, water supply and waste treatment is already present in the East. The additional cost to develop the necessary infrastructure is not often considered and is a major factor in the economics of oil shale development.

Product Marketability. Eastern oil shale is located in proximity to where its products can be used. Three of the largest gas transmission lines in the U.S. cross the Appalachian Basin oil shale belt in Eastern Kentucky. Ashland Oil's Cattlettsburg refinery is located within a 50 mile radius of some of the best oil shale in Kentucky. New refineries would not have to be built to develop the resource. Thus the size and capital requirements for a commercial Eastern oil shale plant could be small. Capital investment is a major impediment to the development of new energy sources. The ability of Eastern shale to deliver a broad range of products such as high- and medium-Btu gas, specialty chemicals, sulfur and surplus power provides flexibility which lowers economic risk.

Social Considerations. Oil shale mining is congruent with the socio-economic base indigenous to the east. Major Eastern oil shale deposits are located adjacent to the Appalachian Coal Basin and the Eastern Interior Coal Basin. There were approximately 60,000 people involved in coal mining in 1980 in Kentucky and approximately 25,000 today. Thus, there is a large mining community capable of developing Eastern oil shale, and sorely in need of work.

Environmental Considerations. The East has abundant rainfall and water resources. This makes reclamation of mined lands easier and more effective. Eastern oil shale can be surfaced mined, which allows for complete resource recovery and is less costly than underground mining. With this type of mining, the spent shale can be returned to the mine and the topographic character of the land preserved. Perhaps most importantly, Eastern shales are silicates which produce far less CO_2 when heated to process temperatures than the carbonate shales of the Western U.S. CO_2 emissions will be a major consideration in energy development in the next century.

Research Funding Recommendations. Eastern oil shale is an immense resource with great potential. Research over the past ten years has greatly advanced our understanding and lowered development costs. These efforts must be continued to confirm the viability of these new technologies and to bring them to a point where they can be taken to commercial scale. The development of this resource is long term and is most logically approached by supporting stable research programs which help to maintain a core of expertise. This has also been the policy of the United States Congress for the past five years. For fiscal year 1991 we support a $8.5 million dollar program for Eastern oil shale research including;

- $4.35 million dollars to initiate the scale up of the PFH process at the Institute of Gas Technology.
- $1.15 million dollars for further cost improvements of the PFH process at the Institute of Gas Technology.
- $375,000 for continued development of the KENTORT II technology at the University of Kentucky, Center for Applied Research.
- $380,000 dollars for environmental studies of retorted Eastern oil shale at the at the University of Kentucky, Center for Applied Research and University of Wyoming.

In closing I would like to add that there are some who are calling for a large single oil shale project at the demonstration level in the Western U.S. This would essentially consume all the financial resources available for oil shale research, for an investment in a single unproven technology. We do not believe that today's economic situation and technical understanding warrant such a project. We therefore endorse the regionally balanced approach to oil shale research funding which the United States Congress has pursued in the past.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—FOSSIL ENERGY RESEARCH

WITNESS

WILLIAM H. CALKINS, CHAIRMAN, DIVISION OF FUEL CHEMISTRY, AMERICAN CHEMICAL SOCIETY, AND ADJUNCT PROFESSOR OF CHEMICAL ENGINEERING, UNIVERSITY OF DELAWARE

Mr. DICKS. All right, we now have the American Chemical Society, Dr. William H. Calkins.

Mr. CALKINS. Thank you, Mr. Chairman. My name is William Calkins. I'm chairman of the Fuel Chemistry Division of the American Chemical Society and adjunct professor of chemical engineering at the University of Delaware.

Mr. DICKS. We'll put your statement in the record, and you have five minutes to proceed.

Mr. CALKINS. The Fuel Chemistry Division consists of 1,000 chemists and engineers whose primary interest is fossil fuel research. The ACS board of directors has authorized my presentation of this statement.

In brief, we feel increased fuel research is needed and that the supply of trained scientists and engineers is alarmingly low and that efforts should be made to rectify these problems.

Your subcommittee is, no doubt, aware that the United States is faced with a serious problem of energy supply, particularly of transportation, fuel, and heating oil. Last year the U.S. imported more petroleum than it produced, and the domestic production of petroleum is dropping steadily. A substantial portion of our balance-of-trade deficit is attributed to imported oil. The threat of cutoff of petroleum imports, as occurred in 1973, still exists.

At the same time, we're confronted with a number of serious environmental problems arising from the use of both petroleum and coal which must be addressed. Steps have already been taken by the Congress with the clean coal technology initiative, and more stringent clean air legislation is proposed. Both of these initiatives will require a great deal of scientific and engineering R&D.

The United States is fortunate in being richly endowed with both coal and oil shale. Coal represents approximately 90 percent of our indigenous fossil energy resources, and it's about a third of the world's coal supply. However, despite encouraging advances in direct coal liquefaction technology and in shale processing, we still do not have economically-viable processes for commercial exploitation as liquid fuels of this enormous resource at present oil prices.

Further improvements in our technology for coal liquefaction, however, appear to be quite possible, but it will require continuing research. The solution——

Mr. DICKS. What are the major issues?

Mr. CALKINS. Economics of the liquefaction process, for example, in coal liquefaction, and there are a number of quite possible solutions we see to this, but it's going to require process development work and further research.

Mr. DICKS. Where's the major research done on this?

Mr. CALKINS. Wilsonville, which already testified, is the main location for pilot plant studies, but there is research going on in the consortium on which Gerry Huffman will be testifying next——

Mr. DICKS. Okay.

Mr. CALKINS [continuing]. And in various universities there is research. In our university, the University of Delaware, we're doing some work on coal liquefaction.

Mr. DICKS. Okay.

Mr. CALKINS. The solution to these process problems and the environmental problems has to come from fuel scientists and engineers. In 1973, when the energy crisis hit, the United States had only a very small cadre of fuel science-trained scientists and engineers that were capable of dealing with this complex problem. It took 6 to 10 years to develop a sufficient number of scientists and engineers trained in this area before important progress could be made.

During that period, important progress was finally made in coal liquefaction, coal gasification, shale oil production, and a number of the benefication and fuel clean-up processes. However, with the drop in imported oil prices in 1984 and 1986, the energy industry, which had built up a large number of experienced fuel scientists and engineers, shut down some laboratories and they drastically reduced staff across the industry. This was done because there was little prospect of near-term commercial exploitation of nonpetroleum fuels.

While it's difficult to get accurate figures on the number of industrial researchers active in this area, a clearly reliable measure can be attained from the patent literature. We have made such a patent study, and it clearly shows that patents in the area of alternate fuels built up to a maximum around the very early eighties and have now dropped to essentially zero. We have had discussions with a few companies that are willing to discuss their active research efforts, and most of them have confirmed our conclusions that there is virtually very little, if anything, being done in industry now toward solution of these important problems.

Mr. DICKS. Now you have about 30 seconds to go here, Dr. Calkins.

Mr. CALKINS. Well——

Mr. DICKS. You've done an excellent job.

Mr. CALKINS. Ample supply of clean fuel is vital to our well-being in the country and for decades to come. The United States finds itself in a precarious position. We're not only without an assured environmentally-benign fuel supply, but we do not have the trained people to extricate ourselves from the next energy crisis, if and when it comes. If adequately trained people are not available, we're going to be in a difficult situation to cope with this.

Fuel scientists and engineers are the people capable of developing this technology for utilization of indigenous, nonpetroleum sources, and they also must play an important role in solving the difficult environmental problems. For that reason, the American Chemical Society recommends that financing and other incentives be provided for industry, so that indigenous petroleum supplies are conserved, which they're not being done now, and long-range research targeted to the use of other indigenous fossil fuel work is encouraged.

We also strongly urge that advanced coal research programs in the fossil fuel R&D budget be increased by 50 percent, to about $62 million. This new budget would provide an enhanced research effort in universities and various Government-supported institutions. More importantly, it would provide for the training of more fuel scientists, which we badly need.

Mr. Dicks. All right, thank you very much. We appreciate your statement.

[The prepared statement of William Calkins follows:]

STATEMENT

of the

American Chemical Society

STATEMENT

of

DR. WILLIAM H. CALKINS

on behalf of the

AMERICAN CHEMICAL SOCIETY

to the

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

COMMITTEE ON APPROPRIATIONS

U.S. HOUSE OF REPRESENTATIVES

on the

DEPARTMENT OF ENERGY FOSSIL R&D FY 1991 APPROPRIATION

THURSDAY, MARCH 8, 1990

Dr. William H. Calkins
American Chemical Society

Mr. Chairman and Members of the Subcommittee:

My name is William Calkins. I am the Chairman of the Division of Fuel Chemistry of the American Chemical Society and Adjunct Professor of Chemical Engineering at the University of Delaware. The Fuel Chemistry Division consists of about 1,000 chemists and engineers whose primary interest is fossil fuel research and development. The ACS Board of Directors has authorized my presentation of this statement of the Society's views regarding the Department of Energy's fossil energy research budget; in particular, the alarmingly low number of trained fuel scientists and engineers in the United States.

Several recent reports[1,2] spell out difficult problems the United States is facing in ensuring an adequate energy supply and minimizing the environmental impact of fuels used in transportation, heating, and electricity generation. The distressing increase in the amount of petroleum being imported (now greater than the amount the U.S. is producing), air pollution from power plants, and the inability of many of our cities to attain present air quality standards are matters that affect the national security, economic strength, and quality of life of this Nation. The Department of Energy is currently developing a National Energy Strategy that will address many of these concerns.

Congress is to be commended for initiating the Clean Coal Technology[3] Program in 1986, which is clearly a valuable first step toward reduction of air pollution from power plants. Further steps will be required to deal with the supply and pollution problems resulting from the use of transportation fuels. The "greenhouse effect," still a matter of debate among scientists, also may require special measures.

The American Chemical Society draws your attention to a related situation having serious implications for this Nation, specifically the development and maintenance of a sufficient number of scientists and engineers who are trained and knowledgeable in the particular problems involved in fossil fuel technology.

At the time of the "energy crisis" of 1973, the United States had only a very small cadre of trained scientists and engineers capable of understanding the technologies and performing the research and development work required. Scientists and engineers working in fossil energy are employed in industry, government

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[1] U.S. Production of Liquid Transportation Fuels: Costs, Issues, and Research and Development Directions, National Research Council (Washington, D.C., 1989)

[2] Energy Security, Department of Energy Report to the President (Washington, D.C., 1987)

[3] In a previous statement, the ACS recommended that a portion of Clean Coal Technology funds be set aside for fundamental R&D to provide a better understanding of the complex phenomena involved.

laboratories, and research institutes, as well as in a limited number of universities. It took the next 6 to 10 years to develop sufficient numbers of experienced people in these institutions to deal with the problems involved.

In those years, the numbers of industrial scientists and engineers actively working on these problems increased greatly. Pilot plants for demonstration of processes for liquefaction of coal (which represents about 90 percent of our indigenous fossil energy resources) were built and operated. These activities led to the development of a process for direct liquefaction of coal to produce liquid fuels for transportation and heating. This process is a vast improvement over older German and more recent U.S. processes. It is estimated to be capable of producing transportation fuels at a price reached by imported petroleum in 1984. Promising avenues exist for reducing these costs further with additional research and development. Also, new coal gasification processes were demonstrated, oil shale retorting and shale oil refining processes were tested, and a number of alternative processes were developed to alleviate air pollution arising from coal combustion.

With the drop in oil prices, and the consequent removal of incentives for near-term commercial exploitation, several industrial laboratories were shut down and technical staffs across the industry were drastically reduced. A search of those U.S. patents filed in coal liquefaction, coal gasification, and shale oil processes, for example, clearly shows the result. Patents in these fields filed in this country by U.S. organizations increased steadily from 1973 to a maximum in the early 1980's, and dropped almost to zero by 1989, despite many remaining problems that need to be solved. While the free enterprise system clearly has served this country well, current market forces and uncertainties in forecasting provide no incentives and involve too many risks for industry to actively pursue projects needed in the long term.

Similar problems, although somewhat less severe, exist at the national laboratories. For example, at Argonne National Laboratory and Oak Ridge National Laboratory, key laboratories for energy research, funding for fossil energy research peaked in the early 1980's, and has since dropped 45 and 70 percent, respectively. The funding levels are reflected directly in the number of scientists and engineers actively engaged in fossil research at these laboratories.

The universities have diverted their attention to areas of chemistry and engineering more actively supported by other agencies. A history of fossil energy research at two of the major universities traditionally active in fossil fuel research--Pennsylvania State University and the University of Utah--is indicative of the problem being faced today. The graduate student population working on fossil energy problems has dropped about 35-40 percent since 1981-1982. An even more serious situation applies to those universities with smaller, but active, fossil energy programs. Many of these latter institutions have experienced greater difficulty in maintaining research programs. It should be noted that the Department of Energy's University Coal Research subprogram can only fund about 10 percent or less of the proposals received. Academic research programs are not only important for progress in the field, but also are needed to train the scientists and engineers of the future. Trained people lost to other fields of science or technology cannot easily be either replaced or returned to their original fields.

Ample supplies of clean fossil energy are vital to the well-being of this country. The United States finds itself in a precarious position--not only are we without an assured and environmentally benign fuel supply (despite our rich resources of coal and oil shale), but we also do not have the trained people to extricate ourselves from the next energy crisis. Even if adequately trained people would be available to do the work, long periods of development, design, and construction would be required to establish plants for production of fuels from indigenous sources.

Steps must be taken now to correct this critical situation. The solution can only be arrived at by increasing fossil energy R&D conducted in industry, government, university, and other laboratories. Fuel scientists and engineers are the only ones capable of developing the technology for utilization of indigenous fossil energy supplies. They also must play a major role in solving the difficult environmental problems associated with the use of these energy sources, as well as with imported petroleum. The American Chemical Society recommends that financial and other incentives be provided for industry so that indigenous petroleum supplies are conserved and long-range research targeted to use of other indigenous fossil fuel resources is encouraged.

The Society believes that the DOE's FY 1991 budget request for Advanced Coal Research programs, if implemented as is, would be disastrous. Even a level budget adjusted for inflation for FY 1991 would not be sufficient for the Nation to address the many problems referred to earlier or to provide the needed increases in trained scientists and engineers. The ACS strongly urges that the Advanced Coal Research programs in the Fossil Energy R&D budget be increased by at least $21 million to $62 million, about 50 percent higher than the FY 1990 budget levels. This represents an increase of about $28 million above the FY 1991 budget request. The accompanying Appendix gives a budgetary history for Advanced Coal Research programs (Advanced Research and Technology Development, Control Technology and Coal Preparation Advanced Research, Coal Liquefaction Advanced Research, Combustion Systems Advanced Research, Fuel Cells Advanced Research, and Surface Coal Gasification Advanced Research).

The American Chemical Society appreciates this opportunity to express its views. The Society hopes that you will consider these concerns and recommendations as you take up the Fossil Energy R&D budget for FY 1991.

Appendix

ACS
March 8, 1990

APPENDIX

Federal Support for Advanced Coal Research Programs (a)

(Dollars in Thousands)

	Control Technology & Coal Preparation Advanced Research	Advanced Research & Technology Development	Coal Liquefaction Advanced Research	Combustion Systems Advanced Research	Fuel Cells Advanced Research	Surface Coal Gasification Advanced Research	TOTAL
1981		$58,383					$58,383
1982		51,936					51,936
1983		31,650					31,650
1984		38,996					38,996
1985		30,804	$5,511			$3,364	39,679
1986		33,849	5,157			3,379	42,385
1987	$1,139	26,630	4,470	$3,248	$1,350	2,806	39,643
1988	2,042	24,937	6,132	3,351	1,547	2,698	40,707
1989	1,774	25,564	6,902	2,972	1,597	2,679	41,488
1990	2,092	26,390	6,636	2,360	1,458	2,617	41,553
1991(b)	1,659	26,488	2,890	2,159	352	546	34,094

a. Until 1986, Coal Liquefaction Advanced Research and Surface Coal Gasification Advanced Research were funded under Advanced Research and Technology Development as the Processes subprogram. Part of the Direct Utilization subprogram under AR&TD was transferred to Advanced Research within Control Technology and Coal Preparation, Combustion Systems, and Fuel Cells to comply with FY 1988 Congressional direction.

b. Administration's Budget Request.

Source: Budget Justification Books for the Department of Energy.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/FOSSIL ENERGY—LIQUEFACTION

WITNESSES

GERALD P. HUFFMAN, DIRECTOR, CONSORTIUM FOR FOSSIL FUEL LIQUEFACTION SCIENCE [UNIVERSITY OF KENTUCKY, UNIVERSITY OF PITTSBURGH, AUBURN UNIVERSITY, WEST VIRGINIA UNIVERSITY, AND UNIVERSITY OF UTAH]

LARRY ANDERSON, CHAIRMAN, FUEL SCIENCE DEPARTMENT, UNIVERSITY OF UTAH

IRVING WENDER, PROFESSOR OF CHEMICAL ENGINEERING, UNIVERSITY OF PITTSBURGH; FORMER DIRECTOR, PITTSBURGH ENERGY TECHNOLOGY CENTER

RICHARD BAJURA, WEST VIRGINIA UNIVERSITY

GEORGE FUMICH, WEST VIRGINIA UNIVERSITY

Mr. DICKS. Dr. Gerald P. Huffman, director of the Consortium for Fossil Fuel Liquefaction Science.

Mr. HUFFMAN. Good morning, Mr. Chairman.

Mr. DICKS. We're glad to have you here.

Mr. HUFFMAN. My name's Gerry Huffman. I am the director of the Consortium for Fossil Fuel Liquefaction Science. Our consortium is a research organization that consists of approximately 100 participants from five universities: the University of Kentucky, West Virginia University, Auburn University, the University of Pittsburgh, and the University of Utah.

Appearing with me here today are several representatives of those universities. To my left, far left, is Dr. Larry Anderson, who is chairman of the fuel science department at the University of Utah. To my immediate left is Dr. Irving Wender, who is professor of chemical engineering at the University of Pittsburgh. He's also a former director of the Pittsburgh Energy Technology Center. And somewhere in the background are Dick Bajura and George Fumich from West Virginia University.

Coal, of course, is very important to the economies of our five States. Because of that, we provide dollar-for-dollar matching funds to the Federal funds that are put into our research program.

Mr. DICKS. Good.

Mr. HUFFMAN. During the first several years of our program, the first three years to be specific, we have identified several research topics which we feel are crucial to the eventual development of an economic and viable coal liquefaction technology. We're going to concentrate most of our efforts in future years on these topics. I'd like to just briefly summarize these for you.

The first is the use of iron-based catalyst in coal liquefaction. Iron is, of course, the cheapest catalyst that you can choose. A number of scientists in our consortium have developed ways of incorporating iron into the coal matrix in which it's very highly dispersed and very catalytic. So, we're going to pursue that topic in some detail.

A second topic that we're quite interested in is the detailed relationship between the molecular and microstructure of coal and its behavior in different types of liquefaction processes.

Between our five universities, we have a wide range of characterization capabilities, and we believe that we're really uniquely well suited to investigate that particular topic.

Finally, I'd like to mention an area that we refer to as novel liquefaction processes. These are processes that we believe are not really being pursued very aggressively anywhere else that involve, for example, very novel processes, such as biological processing, novel catalysts such as liquid gallium, and novel engineering concepts such as the use of ultrasonics.

Finally, I'd just like to mention that this group, our consortium, is concerned about the fact that the Japanese continue to outspend the United States on coal liquefaction research. This was really brought home to Dr. Anderson and me recently when we attended the International Conference on Coal Science. It was hosted by Japan, so you would expect a somewhat heavier Japanese representation, but Japanese scientists and papers outnumbered U.S. scientists at that conference by a factor of about 6-to-1.

Mr. DICKS. Do the Japanese have any coal?

Mr. HUFFMAN. They have no coal, virtually no coal. They import almost all of it.

Mr. DICKS. So what's their interest? They're interested—they want to help us develop our coal?

Mr. HUFFMAN. That's it. They want to build coal liquefaction plants in this country, just like they're building automobile plants now. That's part of it. They're also developing in coal in Australia. But, transportation fuels is their primary interest.

Mr. DICKS. And they also could import coal from other people?

Mr. HUFFMAN. Yes.

Mr. DICKS. When is this all going to be viable? We've put quite a bit of money into this. What do you predict here?

Mr. HUFFMAN. I think it's not unrealistic to imagine that the cost of oil is going to continue to increase and the cost of oil produced from coal is going to continue to decrease, and that those two curves might cross time in 20 to 25 years.

Mr. DICKS. You think it's going to take that long?

Mr. HUFFMAN. Possibly. It depends on who's right about the estimate of oil that still remains in the Middle East that's easily accessible. You hear various predictions ranging from——

Mr. DICKS. But you really see this coming after we're on a downward slope on oil?

Mr. HUFFMAN. Right. Right; and, in the meantime, I think liquefaction research serves to keep a cap on the price of imported oil.

Our price is going to continue to decrease as we come up with better processes and better catalysts, and the price of oil from the East is going to continue to increase as they run out of it.

I might mention also, Dr. Calkins referred to the fact that there is a lack of trained fuel scientists and engineers in this country. We have approximately 50 graduate students in our program right now.

Mr. DICKS. That's good. Well, we appreciate very much the work that you're doing. We think this is obviously a long-term prospect, but one we have to keep working on. I'm glad you told us what the Japanese are doing, too.

Thank you.

Mr. HUFFMAN. You're welcome.

Mr. DICKS. And your statement will all go in the record, too.

[The prepared statement of Gerald Huffman follows:]

The Consortium for Fossil Fuel Liquefaction Science

University
of
Kentucky

University
of
Utah

University
of
Pittsburgh

West
Virginia
University

Auburn
University

Kentucky
Center
for Applied
Energy
Research

Making coal liquefaction an energy resource alternative

Statement of

Dr. Gerald P. Huffman, Director
Consortium for Fossil Fuel Liquefaction Science

University of Kentucky
University of Pittsburgh
Auburn University
West Virginia University
University of Utah

Submitted to the House Appropriations Subcommittee
for Interior and Related Agencies

March 8, 1990

University of Kentucky • 233 Mining and Mineral Resources Building
Lexington, Kentucky 40506-0107 • (606) 257-4027

Mr. Chairman and Members of the Committee:

My name is Gerald Huffman and I am the Director of the Consortium for Fossil Fuel Liquefaction Science (CFFLS). I am submitting testimony today on behalf of the five member universities of the Consortium; the University of Kentucky, the University of Pittsburgh, Auburn University, West Virginia University and the University of Utah. The Consortium is conducting a long-range, cooperative research program on coal liquefaction with the U.S. Department of Energy (DOE) in which the five Consortium universities provide matching funds to DOE funding on a dollar-for-dollar basis. We are seeking funding from DOE of $2.5 million in 1991 to support our research program. We are also strongly supportive of a significant increase in all federal funding of coal science and coal liquefaction research.

Approximately 100 people from the five CFFLS universities participate in the Consortium research program, the principal goal of which is to develop new and improved methods of converting coal to liquid transportation fuels. Combining the expertise and facilities of five universities enables us to avoid duplication, utilize each other's capabilities, and ultimately obtain a greater return for our research dollars.

The general goals of the Consortium are:

- To provide scientific leadership and enhance national capabilities in direct coal liquefaction research.
- To maintain and improve a world-class level of expertise and facilities that will continue the critical level of activity required for a coal liquefaction research program in this country.
- To create innovative and revolutionary concepts in basic coal liquefaction technology that will meet any challenges to U.S. energy security in transportation fuels.
- To recruit and educate a new generation of scientists and engineers in graduate level programs involving coal liquefaction.
- To transfer technology to industry and government in order to hasten the development of a coal liquefaction industry.

In order to accomplish these general goals, the Consortium has identified four research thrust areas in which to concentrate its efforts over the next several years. These thrust areas are briefly summarized below.

I. Iron-based Catalysts for Coal Liquefaction

Recently, interest in iron-based catalysts for coal liquefaction has greatly intensified. Several factors have contributed to the renewed interest in the use of iron-based catalysts for coal liquefaction. First, they are low in cost and consequently may be used as disposable catalysts, avoiding troublesome and expensive catalyst recovery schemes. Second, methods have been developed for preparing iron catalysts in highly dispersed forms, greatly increasing reactivity. Finally, numerous structural characterization methods have become available that allow the molecular structure and microstructure of these highly dispersed catalysts and their hydrocarbon reaction products to be accurately determined. Many of these developments have been achieved through the CFFLS program. Over the next several years, our goal will be to determine to if iron is the catalytic element of choice for direct coal liquefaction.

II. Exploratory Research on Coal Conversion

The principal emphasis of this task is to obtain a better understanding of the molecular structure and microstructure of coal and the relationship of these structures to coal conversion reactivity, especially with regard to yield and composition of liquid products. In order to accomplish this, correlative studies of the same suite of coals and conversion products are being conducted at all of the CFFLS institutions using a wide array of techniques. We believe that the Consortium has the widest array of analytical capabilities and expertise available anywhere in the world for this type of research.

III. Novel Coal Liquefaction Concepts

This thrust area includes approaches that differ significantly from the traditional liquefaction method of high pressure hydrogenation of coal at 400 to 500°C. Examples of novel liquefaction processes to be investigated by CFFLS include biological processing of coal, novel multi-stage chemical reaction pathways, and novel engineering concepts.

IV. Novel Catalysts for Coal Liquefaction

While iron based catalysts represent a major topic of interest for the Consortium, novel catalysts for coal liquefaction containing metals other than iron are also being studied. These include highly dispersed forms of such metals as gallium molybdenum, vanadium, nickel, chromium, and cobalt.

We believe that this program is a complete, comprehensive approach to direct coal liquefaction research. Furthermore, we feel that the results of the program will continue to drive the price of oil derived from coal downward, keeping a cap on the price of imported oil and, ultimately, relieving our dependence on imported oil which now accounts for more than 50% of our national supply.

Finally, it is worth emphasizing that our national research effort in coal liquefaction and in coal science in general is continuing to lag behind that of the Japanese. A good example was provided by the recent International Conference on Coal Science, hosted by Japan in Tokyo, October 23-27, 1989. Japanese participation in the conference far outdistanced that of the U.S., with nearly 300 Japanese scientists and only about 50 U.S. scientists attending. According to the International Energy Agency (IEA), the Japanese now spend more money on coal research and development than does the U.S. ($247 million versus $212 million in 1987) and the number and quality of Japanese research papers presented at the meeting reflected this fact.

The CFFLS is a highly cost-effective method by which the U.S. can achieve leadership in coal liquefaction research. With an increase in federal funding to $2.5 million and a corresponding increase in matching funds, it will be possible to enlarge the scope of existing research projects and to add new projects in areas that are not currently being addressed.

Supplementary statements are attached from:

Dr. Irving Wender
Research Professor, Chemical and Petroleum Engineering
University of Pittsburgh

Dr. M. Dayne Aldridge
Associate Dean for Research, College of Engineering
Auburn University

Dr. Ronald Pugmire
Associate Vice President for Research
University of Utah

Dr. Richard Bajura
Director, Energy and Water Research Center
West Virginia University

University of Pittsburgh
SCHOOL OF ENGINEERING
Chemical and Petroleum Engineering Department

March 2, 1990

The Honorable Sidney R. Yates
Chairman, Interior and Related Agencies
Appropriations Subcommittee
B-308, Rayburn House Office Building
Washington, DC 20515

Dear Congressman Yates:

I am writing in behalf of funding for the Consortium for Fossil Fuel Liquefaction Science in the Fossil Energy Budget for the Department of Energy.

As you know, petroleum imports reached 54% of our oil needs in January 1990. Declining oil production in the U.S. along with increasing oil usage, means that we will be spending billions of dollars for imported oil by the year 2000 and thereafter. As oil imports grow, oil spills will proliferate.

Our energy-rich country, unfortunately, has a growing shortage of transportation fuels and the Consortium for Fossil Fuel Liquefaction Science is aiming at solving this troubling problem. Oil made from coal can help alleviate this transportation fuel shortage, thus cutting down on our imports, aiding in the defense of this country, cutting our trade deficit and protecting our environment.

Recent work at the University of Pittsburgh, together with other members of the Consortium, has provided strong evidence that oil can be made from coal using cheap, environmentally acceptable, throwaway iron catalysts. We are on the verge of turning the conversion of coal to oil in an improved, more realistic way, using materials easily available in this country.

The Consortium, working with industrial support and DOE, has specific goals that promise to achieve the conversion of coal to oil in a much improved way. The next few years should see our concerted efforts open the door to an understanding and solution to the import problem.

The asked-for funds are small but the returns will be large.

I urge you to support funding for the Consortium for the upcoming fiscal year.

Sincerely,

Irving Wender

Irving Wender
Research Professor

IW/jsg

1249 BENEDUM HALL, PITTSBURGH, PA 15261 (412) 624-9630/FAX: (412) 624-9639

Auburn University
Auburn University, Alabama 36849-5358
College of Engineering

Thomas Walter Center
For Technology Management

Telephone: (205) 844-4333
FAX: (205) 844-1678

March 5, 1990

The Hon. Sidney R. Yates, Chairman
Interior and Related Agencies
Appropriations Subcommittee
B-308 Rayburn House Office Building
Washington, DC 20515

SUBJECT: The Consortium for Fossil Fuel Liquefaction Science

Dear Sir:

In the course of your deliberations for FY91 appropriations please by aware of the importance of current federal funding for research now underway at Auburn University through the subject consortium.

This program is insuring the continuation of direct coal liquefaction research by an experienced team of faculty that has over 40 years of collective experience with this technology. Reduced federal and private funding has been threatening the existence of this and similar teams in the United States. Although significant funds are being provided by the State of Alabama for our work, they are insufficient to maintain a high quality program over the long term.

Probably the most important products of academic research are the students produced for industry and government. Dramatic increase in federal funding for other research is threatening the production of the next generation of researchers in basic areas such as coal liquefaction. Three students with advanced degrees will graduate this year from Auburn. Current funding through the Consortium assures additional graduates next year.

Research activities at Auburn are coordinated with the other members of the Consortium and focuses on enhanced reactivity and selectivity in coal liquefaction and coprocessing.

I urge you to assure the continued funding of this unique federal partnership with Alabama and other states.

Sincerely,

Dayne Aldridge

M. Dayne Aldridge
Associate Dean
College of Engineering

A LAND-GRANT UNIVERSITY

THE UNIVERSITY OF UTAH

2 March 1990

Refer to: 90-084

The Honorable Sidney R. Yates
Chairman
Interior and Related Agencies
  Appropriations Subcommittee
B-308 Rayburn House Office Building
Washington, D.C. 20515

SUBJECT: Testimony Regarding the Consortium for Fossil Fuel Liquefaction Science

Dear Sir:

During the past five years the estimated production costs of transportation fuels from coal have been dramatically reduced from $80 to $35 per barrel according to a recent, authoritative analysis in a leading scientific journal (R.B. Lumpkin, Science, Volume 239, pages 873-879, 1988). Dr. Lumpkin, director of coal utilization projects for AMOCO Corporation, credits this 60% cost reduction to modern research and development efforts and concludes: "Opportunities for new technologies that offer low cost routes to making transportation fuels from coal seem better than ever". Since this report was published, the estimated cost has moved closer to $30 per barrel.

One such new technology, based on low temperature catalyzed depolymerization which produces high quality liquids, is vigorously being pursued by several senior faculty members and their students at the University of Utah. This multidisciplinary team, consisting of Professors Larry Anderson, Ted Eyring, Henk Muezelaar, Ron Pugmire and Joseph Shabtai, represents four academic departments in three different colleges and operates in close collaboration with the other member groups of the Consortium for Fossil Fuel Liquefaction Science. This new technology is based on low temperature coal depolymerization which does not require high temperature processes but is based instead on clever chemical manipulation of the cross-linking structure of coal. This new approach appears to produce a high quality coal liquid under experimental temperature conditions of 250°C rather than the more commonly used temperature ranges of 400-500°C. If this technology proves to be effective, it has the potential for significantly lowering the costs of coal liquefaction.

Other recent successes include the development of advanced computer models to predict coal liquid yield and composition from spectroscopic data.

Vice President
for Research

210 Park Building
Salt Lake City, Utah 84112
(801) 581-7236

Within the University of Utah alone, at least five more faculty members and their students, including several outstanding young scientists, are eager to join the consortium and give their best efforts to the cause of coal liquefaction research provided adequate funding can be established. Furthermore, the State of Utah has demonstrated its strong, continued commitment to the development of novel coal liquefaction and utilization methods by making matching funds available for federally and/or industrially sponsored coal research and development projects.

In conclusion, it is my firm belief that the Consortium for Fossil Fuel Liquefaction Science represents the unique combination of talents, expertise, skills and commitment which will be needed to help make liquid fuels from coal an economically viable alternative to oil imports before the year 2,000.

Sincerely yours,

Ronald J. Pugmire
Associate Vice President
for Research
Professor, Fuels Engineering

RJP:bm

Testimony

before

House Appropriations Committee
on
Interior and Related Agencies

Sidney R. Yates, Chairman

presented by

Richard A. Bajura, Director
Trina L. Karolchik, CFFLS Program Manager
George Fumich, Program Consultant
Energy and Water Research Center
West Virginia University
Morgantown, WV 26506-6064
304/293-2867

Thursday, March 8, 1990

on

U.S. Department of Energy Program on Liquefaction and the Consortium for Coal Liquefaction Science

Good morning, Mr. Chairman, and members of the Committee. I am Richard Bajura, Director of the Energy and Water Research Center at West Virginia University. One of my co-authors, George Fumich, former Dean of our College of Mineral and Energy Resources, is also with me today.

We are submitting this testimony as part of the overall presentation by Mr. G. Huffman in describing the programs of the Consortium for Fossil Fuel Liquefaction Science (CFFLS). Our research is supported by the U.S. Department of Energy and administered through the Pittsburgh Energy Technology Center. We seek your continued support for this program.

The Coal Products Tree

Coal is an abundant natural resource in West Virginia and other areas of our country. Petroleum is not as plentiful. The United States expects to be importing over 50% of its petroleum supplies in the near future to satisfy consumer demands for transportation fuels, chemicals, plastics, and other petroleum-based materials.

The thrust of our research program is to find ways to produce liquids from coal to replace petroleum and reduce the deleterious effect increased use of petroleum places on our economy. The accompanying figure shows how coal can provide many products currently made from petroleum if we can develop cost effective ways to liquefy this resource. We believe the CFFLS program will prove to be a vital source of new technology for developing petroleum substitutes from coal.

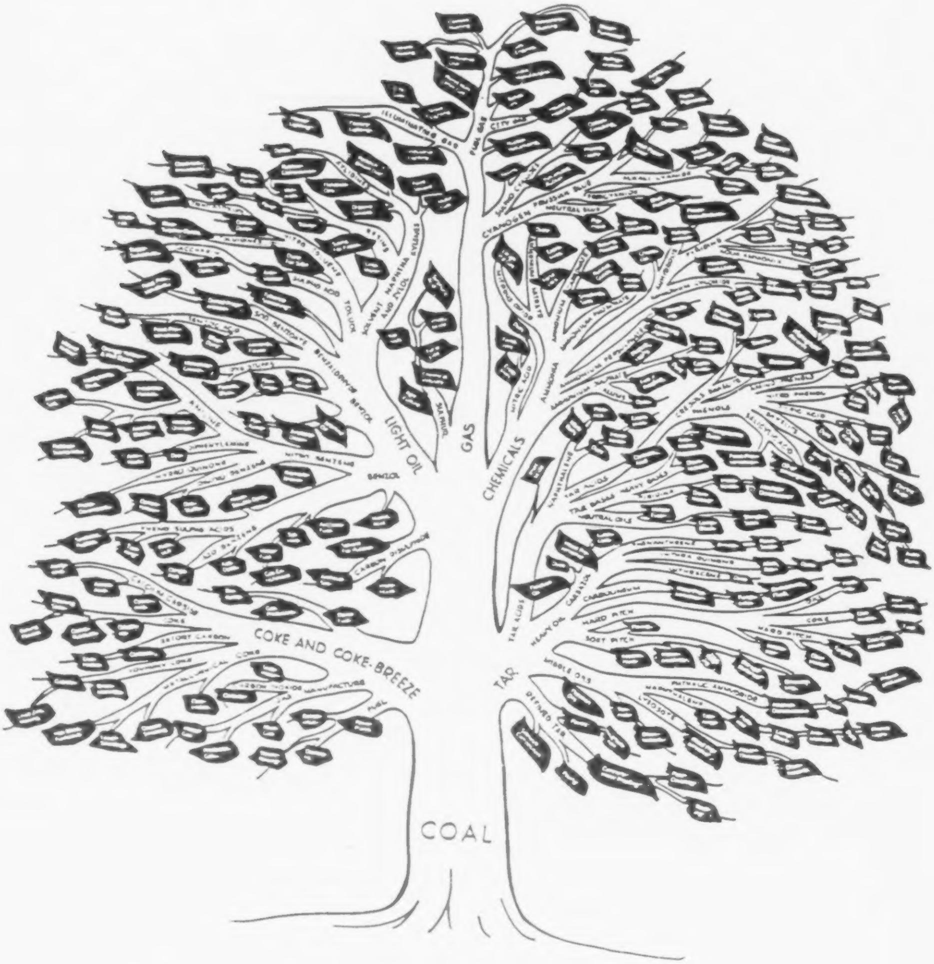
The CFFLS Program

The Consortium for Fossil Fuel Liquefaction Science (CFFLS) has developed a closely-knit team of researchers from five universities with strong programs in coal conversion technology. Our focus is on basic research to discover new ways to liquefy coal. We have an industrial advisory group and financial support from industry for the programs of the consortium.

The Consortium has established four goals for FY 91 to investigate iron compounds as catalysts, perform exploratory research on coal structure and reactivity, develop novel coal liquefaction concepts and novel liquefaction catalysts. These goals were developed in close collaboration with PETC and our industrial advisory board. Through regular meetings and discussion sessions, our research teams exchange ideas and share expertise between institutions to solve problems and generate new concepts. The funding provided to the Consortium from USDOE is the key to building such an extended network of coal scientists working on common goals and objectives.

At West Virginia University, we have an active program in several areas of coal liquefaction. These areas include: breaking chemical bonds to promote coal liquefaction at low temperatures, characterizing coal liquefaction intermediate products with in-situ instrumentation, calculating the properties of coal liquids, and determining the effects of cost-effective catalysts on the liquefaction process. One of our research teams was able to produce a high energy, clean coal fuel by dissolving the coal in supersolvents. Possible spin-off industries can be developed from this project which will produce safe transportation fuels and carbon electrodes for the metal industries. Another investigator was able to show that substantial liquefaction of coals at temperatures as low as 200 degrees centigrade is possible using zinc halides as catalysts. These results show that continued investment in basic research will lead to new technologies which can make the cost of liquefying coal competitive with petroleum.

West Virginia University strongly supports this initiative and provides substantial cost sharing. We are working with industry to develop programs to produce value-added chemicals from coal liquefaction processes and related processes. We believe that focused research is required in


COAL
COKE AND COKE-BREEZE
LIGHT OIL
GAS
CHEMICALS
TAR
ILLUMINATING GAS
FUEL GAS
CITY GAS
CYANOGEN
PRUSSIAN BLUE
NEUTRAL BLUE
SOLVENT NAPHTHA AND XYLOL
TOLUOL
BENZOL
SULPHUR
NITRIC ACID
AMMONIA
NAPHTHALENE
TAR ACIDS
TAR BASES
HEAVY OIL
HARD PITCH
SOFT PITCH
MIDDLE OILS
REFINED TAR
CREOSOTE
PHENOLS
SALICYLIC ACID
NEUTRAL OILS
CARBOLINEUM
COKE
RETORT CARBON
METALLURGICAL COKE
FUEL
CALCIUM CARBIDE
CARBON DISULPHIDE
NITRO BENZENE
ANILINE
DIPHENYLAMINE

Coal Products Tree

Source: Kentucky Department of Energy

coal liquefaction as an insurance policy against future price increases in petroleum. The consortium program will thus contribute to both our energy and economic security through new developments in basic science which can then be implemented in larger scale testing under the remainder of the USDOE liquefaction program.

Concluding Comments

Thank you for the opportunity to present testimony to the Committee. We will appreciate your continued support for the CFFLS program.

mar90:cfflstst

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/BUREAU OF MINES—MINERAL INSTITUTES

WITNESSES

RICHARD A. BAJURA, DIRECTOR, ENERGY AND WATER RESEARCH CENTER, WEST VIRGINIA UNIVERSITY

GEORGE FUMICH, PROGRAM CONSULTANT, ENERGY AND WATER RESEARCH CENTER, WEST VIRGINIA UNIVERSITY

Mr. DICKS. Richard A. Bajura, director, and George Fumich, program consultant, of the Energy and Water Research Center, West Virginia University?

Gentlemen?

Mr. BAJURA. Good morning, Mr. Dicks.

Mr. DICKS. It's nice to have you here.

Mr. BAJURA. I'm Dick Bajura, and you introduced George Fumich, who's been working with me for several years.

Mr. DICKS. Right.

Mr. BAJURA. We're here to seek your support for the extraction side of the fossil energy and the clean coal technology programs, in particular the work of the Bureau of Mines in mine health and safety, mining technology, and environmental technology.

Our experience has been that these programs foster information exchange and technology transfer that enables industry to solve some of the pressing problems in our mining industry today.

I want to review with you two programs that the committee currently supports in respirable dust and mine land reclamation, and then close with some comments about the overall programs of the Bureau.

The Generic Technology Center for Respirable Dust is a partnership with the Bureau of Mines, with industry, with the United Mine Workers, and five universities. Right now we expect 57 percent of the electricity that will be generated in this country over the next 15 years will be generated from coal. Our pressures on industry are to be more economic, to resist the imports of coal from other countries. As a result, we've gone to long-haul mining. We've had to increase the length of the long hauls and we've also had to increase productivity. This results in higher dust levels and more exposure to workers.

We've also gone to the use of diesels in mines, again for health and safety reasons, but it's also been shown that diesel soot is carcinogenic and increases the exposure of our workers.

We believe that new work is needed to develop technologies for dust control, and I'm optimistic that some of the results of our program are going to develop techniques where we might be able to reduce the incidence of respirable dust disease with some post-exposure injections of chemicals and things of that sort that will help our workers.

We ask your continued support for this program. We're receiving funding at a $2.5 million level, and we would appreciate that for next year.

The second program is in the National Mine Land Reclamation Center. This is a program that faces the environmental problems associated with mining. In the East right now acid mine drainage is currently costing the coal industry a million dollars a day for treatment. We fashioned a team consisting of the Bureau of Mines, the Office of Surface Mining, industry, and five other universities—all working under the guidance of an advisory committee that consists of representatives from these groups.

We've done some laboratory scale tests in universities, and we're now pushing around 4,000-ton piles of dirt to see if we can reclaim some mine land without getting acid mine drainage coming out the bottom. This program of ours involves significant cost-sharing from industry and universities, and right now we're in a position where industry is asking us to undertake more research projects than what we can support from the Federal funding. We've gone through a scoping study. We're proposing new programs. We're poised for growth. We would ask that the committee support our research at the level of $3.5 million, which is what we requested in our original prospectus. We're currently at $1.5 million this year.

My closing comments deal with the general level of support for these kinds of programs under the Bureau of Mines. We need level funding to maintain research teams, to maintain the programs that the Bureau has. Right now the funding level in fiscal year 1990 is the same as it was in fiscal year 1980, but that only buys us one-third of the research that it did back at that time.

I know this is a tight budget year, and we would appreciate your continued support for funding at least this year's level and, if possible, funding at higher levels.

The Mineral Institute's program is also a part of the Bureau of Mines' activities, and we believe that this is also a good way to foster university and Bureau research.

I thank you for your support.

Mr. Dicks. It's an excellent statement. It will be included in the record.

Being from West Virginia, we know you have very powerful patrons in the other body. [Laughter.]

Mr. Bajura. Thank you, sir.

[The prepared statement of Richard Bajura and George Fumich follows:]

Testimony

before

House Appropriations Committee
on
Interior and Related Agencies

Sidney R. Yates, Chairman

presented by

Richard A. Bajura, Director
George Fumich, Program Consultant
Energy and Water Research Center
West Virginia University
Morgantown, WV 26506-6064
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Thursday, March 8, 1990

on

U.S. Bureau of Mines Programs in Mine Health and Safety, Mining Technology, and Environmental Technology

Good morning, Mr. Chairman, and members of the Committee. I am Richard Bajura, Director of the Energy and Water Research Center at West Virginia University. My co-author, George Fumich, former Dean of our College of Mineral and Energy Resources, is with me today.

We seek your continued support for the research and technology programs of the U.S. Bureau of Mines in the areas of Mine Health and Safety, Mining Technology, and Environmental Technology. These programs promote strong working relationships between the Bureau of Mines and Universities. The Bureau of Mines - University relationship often results in industry involvement and support for cooperative projects. These liaisons allow cutting edge research results to be transferred effectively to industrial users who implement technological solutions to pressing problems in America's minerals industry. In today's testimony, we will highlight areas of cooperation between the Bureau of Mines, academic institutions, and industry.

We begin with the observation that progress in research and the eventual transfer of the technology developed requires stable and continued funding. A new program requires several years to develop, form research teams, and obtain the cooperation of industrial partners who implement the downstream applications of research projects. We appreciate the steady support of the Committee in the past, and urge your continued support in the future.

While recognizing the Committee has a limited budget, we urge your consideration for increased appropriations to offset the effects inflation imposes on level funding. For example, the FY 90 budget for health and safety research for the Bureau of Mines has only one third of the purchasing power of the FY 80 budget which was funded at the same level.

Generic Technology Center for Respirable Dust (GTCRD)

Our first example of cooperative programs between the Bureau of Mines, universities, and industry is the Generic Technology Center for Respirable Dust. Our goals are to reduce worker's exposure to respirable coal mine dust and to help relieve the suffering of miners afflicted with this disease. The global situation regarding energy and economic security poses new challenges to our success in this program. Industry needs to increase the size of longwall mining sections and increase productivity in order to remain competitive. Consequently, respirable dust loadings and float dust loadings will also increase. In order to meet these demands on increasing productivity while protecting our miners, more effective control technologies must be developed.

The expanded use of diesels adds additional complications to maintaining healthful breathing environments underground. We need to understand better the interaction of diesel exhaust fumes with coal mine dust, and the effect of this mixture on the lungs. Studies released by NIOSH show diesel dust to be carcinogenic. Better control technologies for diesel exhaust systems, and reliable sensors and monitoring instrumentation must also be developed.

Our work in the study of respirable dust involves close cooperation with the USBM in developing research topics and with industry in conducting studies at field sites to learn how to evaluate worker exposures and apply new technologies. We have 129 investigators in the GTCRD working in areas such as:

- the generation, dispersion, and characterization of dust in mines,
- the interaction of dust with human lungs, and,
- the development of methods to control dust levels and reduce the severity of the disease to those exposed to unhealthful dust concentrations.

Our project teams consist of researchers from the five participating universities, the USBM, NIOSH, industry, and labor. We conduct productive research studies

- in mines to obtain samples of dust,
- in laboratories to characterize the properties of coal mine dust,
- in animals to determine the mechanisms causing the disease, and,
- in human subjects.

Our work has shown that old dust stored in sample banks does not reproduce the active properties of freshly generated dust. Consequently, many results obtained from earlier studies may have questionable value. Some of our researchers are currently exploring promising ways to minimize the damage freshly generated dust causes upon deposition in the lung.

Continued investment in the work of the GTCRD will pay dividends in reducing our costs of caring for miners who have contracted respirable dust disease. Many of our projects are long term, such as the study of miners, and require uninterrupted funding to bring these studies to a successful conclusion. We recommend funding for FY 91 at a level of $2,500,000 to continue the work of this center.

National Mine Land Reclamation Center (NMLRC)

The Bureau of Mines also works closely with five universities in the programs of the National Mine Land Reclamation Center. Acid mine drainage costs the eastern coal industry $1 million a day and prevents development of new coal reserves. Mining impacts to farm land are important problems in the mid-west, while groundwater problems are more important in the western states.

By working closely with industrial advisory committees from each region, we target NMLRC research to solve relevant problems. This approach has resulted in the active participation by state agencies and federal agencies such as OSM and industry in the execution of projects. We have initiated a series of field studies to investigate the merits of research ideas generated from laboratory scale models of problems such as acid mine drainage, soil compaction, and revegetation. The federal funding to the NMLRC supports the research activities of university scientists. The industry and state funding enables us to undertake large operational scale tests. These funds pay for supplies, material handling and transportation costs for materials to the site. Our program is successful and we currently have more requests from industry for cooperative projects than we can support from the present appropriations.

We believe the NMLRC program will provide innovative solutions to some of our most visible environmental problems associated with the mineral extraction industries. The NMLRC program has undergone a development stage and is now poised to undertake an expanded work scope. We recommend funding for FY 91 at a level of $3.5 million as outlined in our original prospectus.

Other Research Areas

The Bureau of Mines conducts important research in other areas such as: innovative mining systems, mine systems analysis, ground control, fires and explosions, human factors, and life support. We recommend funding for the programs in mine health and safety, mining technology, and environmental technology at levels at least equal to FY 90 appropriations.

Mineral Research Institutes

We are pleased to note that the Administration has recommended funding for FY 91 for the research component of the Mineral Research Institutes (MRI) program. Mr. Donald Warner will present testimony today on behalf of the Institutes. He will recommend funding for both the research and allotment programs, and also programs such as the Offshore Minerals and GTCRD and NMLRC programs. We urge your continued support for the Mineral Research Institutes and related programs to be presented by Mr. Warner. Interaction between the Institutes and the Bureau of Mines in conducting these programs provides excellent information exchange among researchers and hastens the transfer of technology to industry.

Concluding Comments

Thank you, Mr. Chairman for the opportunity to appear before your Committee. We will appreciate your continued support for the programs described here today.

mar90:gtcrdtst

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/U.S. GEOLOGICAL SURVEY —WATER INSTITUTE PROGRAM

WITNESSES

PATRICK L. BREZONIK, DIRECTOR, UNIVERSITY OF MINNESOTA WATER RESOURCES RESEARCH CENTER, AND CHAIR, NATIONAL ASSOCIATION OF WATER INSTITUTE DIRECTORS

ARCHIE J. McDONNELL, DIRECTOR, PENNSYLVANIA STATE UNIVERSITY ENVIRONMENTAL RESOURCES RESEARCH INSTITUTE, AND CHAIR, COMMITTEE ON WATER RESOURCES, NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

Mr. DICKS. Professor Patrick L. Brezonik, director of the University of Minnesota Water Resources Research Center, and Chair of the National Association of Water Institute Directors; and Professor Archie J. McDonnell, from Pennsylvania State—Penn State University; right?

Mr. McDONNELL. That's correct.

Mr. DICKS. Gentlemen, we'll put your statement in the record, and you have five minutes to summarize it.

Mr. BREZONIK. Well, I am Pat Brezonik from the University of Minnesota, representing the Water Institute Directors.

I'm not going to tell you this morning what the Japanese are doing in funding the water resources research; I don't think that's relevant. What is relevant is what this country is doing and what it's not doing.

I want to make a few points before we discuss our budget request. First, the Water Institute program has changed with the times and has grown in stature over the past decade. During our 25th anniversary events last year, we had cause to reflect on where we've been, what we're doing, and where we're going. We put together several publications to synthesize the accomplishments of the program from a national perspective.

We saw a lot that we like in terms of vitality of the institutes, their research and training accomplishments, interactions with water and environmental protection agencies and their staff, and the increasing role they're playing in public education and information transfer.

What we didn't like is our apparent inability to get our message across to Congress and the Administration about the merits of the program and inability to translate at least insofar as to not being able to secure adjustments in our appropriation to compensate for many years of level budgets and a consequent loss of a substantial portion of our real funding base through inflation.

I hope that my remarks this morning in some small way will convince you of the merits of the program and the need to adjust funding back to where it was in real dollar terms 10 to 20 years ago.

I want to make three comments to clarify perceptions about the institute program. The first is that the program is definitely a competitively-based program. Each institute operates grant programs with peer review of projects and reports that is comparable to the best of any Federal grant program that I'm aware of. That includes programs in NSF, EPA, and the USGS.

Second, the institutes use most of their Federal grants to fund research projects to faculty at universities in their states and do not keep most of it for internal purposes. In the present year, 1989-1990, the institutes are spending over 70 percent of their Federal funds in such competitively-awarded projects, a total of 266 projects at 106 university campuses.

Third, the term "water resources" in the past often was associated with water development projects. That does not accurately reflect what the institute program is doing today, if it ever reflected that. Our activities encompass the range of issues about the Nation's water resources from its availability to protection of its quality. The program is a strong commitment to the major water quality and quantity issues of the day, including the following examples:

We're funding 93 projects on groundwater contamination in the current year, 12 projects related to agricultural practices that affect water quality, 27 projects on the effects of pesticides, 17 projects on nonpoint source pollution. At the same time, we are directing increasing efforts to the effects of climate change on regional water resources, especially in areas where such changes are expected to be significant.

In summary, the Institute's program is a valuable component of the Nation's water research and professional training efforts. We earnestly urge you to appropriate $10 million for the Institute's section 104 program which is the currently-authorized level; $10 million for the section 105 National Grant Program administered by the USGS. This program is authorized at $20 million annually and receives about $40 million in grant requests.

We request $5 million for a new competitive grant program for the Institute to address issues of critical regional concern and $2.7 million for an information transfer/public education program.

We thank you very much for your attention and consideration. We would be happy to answer any questions you may have.

Mr. DICKS. Well, I appreciate very much your statement and the fact that it is a difficult budget time, and you appreciate that. But this work is awfully important, too. I think if you do any public opinion polling, one thing that people really care about is water quality.

Mr. BREZONIK. That's very true.

Mr. DICKS. This is a very high priority with the American people and sometimes doesn't get as much attention as it should, but I think it's an excellent statement. I appreciate your being here.

Mr. BREZONIK. Thank you.

Mr. MCDONNELL. Thank you.

[The prepared statement of Patrick Brezonik, Archie McDonnell and Gerald Galloway follows:]

TESTIMONY PRESENTED

March 8 1990

before

The House Appropriations Subcommittee

on

Interior and Related Agencies

The Honorable Sidney R. Yates, Subcommittee Chairman

by

Professor Patrick L. Brezonik
Director of the University of Minnesota Water Resources Research Center,
Chair, National Association of Water Institute Directors

and

Professor Archie J. McDonnell
Director, Pennsylvania State University Environmental Resources
Research Institute and Chair, Committee on Water Resources
National Association of State Universities and Land Grant Colleges

and

Colonel Gerald Galloway
Professor and Head, Department of Geography and Environmental Engineering
U.S. Military Academy, West Point, N.Y.
President, Universities Council on Water Resources

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to testify before this subcommittee on the subject of appropriations for the Water Resources Research Institute Program as authorized under PL98-242, the Water Resources Research Act of 1984.

I am Patrick L. Brezonik, Director of the Water Resources Research Center at the University of Minnesota. My testimony is on behalf of the National Association of Water Institute Directors (NAWID), National Association of State Universities and Land Grant Colleges (NASULGC), and Universities Council on Water Resources (UCOWR). Together, these organizations represent all of the nation's universities with major programs in water research and graduate education.

As chair of NAWID, I represent the 54 Water Research Institutes funded by the Water Resources Research Act and located at land-grant universities in each state and four territories. My testimony was prepared in cooperation with Archie J. McDonnell, Prof. of Environmental Engineering at Pennsylvania State University and Chair of the NASULGC Committee on Water Resources, and Gerald Galloway, Prof. and Head of Geography and Environmental Engineering at the U.S. Military Academy and President of UCOWR, an organization of about 85 of our leading universities engaged in research, education, and public service activities related to water. As representatives of the above organizations, we are united in our concern about the quality and adequacy of our nation's water resources and in our commitment to promote quality research, training and outreach programs directed toward water resources issues. We also recognize the need for better federal and state support for water research and education.

Re-authorization of the WRRI Program is being considered by Congress in this session. By a wide margin, the House passed a reauthorizing bill sponsored by Congressman Miller (H.R. 1101) in June 1989. The Senate currently is considering several bills. S.714, introduced by Senator McClure, has 57 co-sponsors; however, the Senate Committee on Environment and Public Works, to which it was referred, has not yet acted on it. We sincerely hope that the Senate will act this session to re-authorize the Program so that it can go forward with a renewed mandate to meet the water challenges of the 1990s.

Abundant and high quality water resources are vital to the nation's wellbeing, but these resources are threatened on many fronts. Water quality concerns have been paramount in recent years, but recent droughts have refocused long-standing concerns about water availability. Predictions of global climate change suggest that water supply management may be an even more pressing issue in the future. Public concern about water quality and availability remains high, and despite extensive efforts to solve these problems, much remains to be done.

The nation's universities, especially its land grant institutions, play three vital roles in identifying and developing solutions to water resources problems. First, they conduct much of the basic and applied research on water issues, thus improving our knowledge and finding new ways to solve problems. By using students for much of the work, they do this in a cost-effective manner. Second, universities provide training for most of the water professionals employed by public agencies and private industry. Third, universities play major roles in public education and information transfer among water professionals.

Role of the Water Resources Research Institutes Program

The WRRI Program was initiated by the Water Resources Research Act of 1964. The decision to locate an Institute in every state was based on the need to assist state and regional water agencies; every state has water resources it must manage. Every state also has a land grant university that conducts graduate research and education related to water resources. The network of WRRIs effectively conveys information on research needs and results *among* states and *between* the states and federal government. The WRRIs thus are a key interface between national concerns and local needs. Since 1983, the WRRI Program has been managed by the U.S. Geological Survey, and much progress has been made in coordinating activities of the Survey and Institutes in the past few years. Cooperative programs between WRRIs and USGS District Offices are common, and coordination of the two programs at the regional level is underway.

Research. The Water Institute Program celebrated its 25th anniversary last year, and as part of the celebration, NAWID developed a commemorative booklet, handbook and video describing from a national perspective the program's past accomplishments and current activities. The booklet confirmed what most of us already knew: the WRRI program has been an important force for high quality, academic research on water problems and has produced findings with major impacts on the way the country's water resources are managed. The prominence of the WRRI Program belies the modest proportion of federal outlays for water research it receives. The Program produces a significant fraction of the literature in water disciplines and has trained thousands of active water professionals. NAWID recently gathered information on the numbers of articles and reports resulting from WRRI projects funded since the 1984 reauthorization. With the help of the USGS, NAWID is analyzing this information to produce a national perspective on WRRI research. Although the analysis is still underway, I can say that the lists of the WRRIs provide impressive evidence of the vitality and accomplishments of their programs.

Research activities of the WRRIs extend beyond the universities at which they are located. WRRIs cooperate with other universities in their states and fund research projects at non-Institute universities. In 1989-90, **over 70% of the federal funds each institute received is being used for direct support of research projects**. Projects funded through the WRRI Program are peer reviewed for technical merit and reviewed by advisory committees for relevance to state needs. The review process encourages objectivity and selection of projects on the basis of both merit and relevance. The programs in each state are **highly competitive**; Institutes typically have funds to support only one out every four or five proposals submitted to it. On a national basis, the program is funding 266 projects on 106 campuses in 1989-90. The number of participating universities would be higher, if matching fund requirements for the program were less severe and funds were not so limited. At present, a match of $2 nonfederal:$1 federal is required. Although the nonfederal match is on a programmatic basis rather than on individual projects, most WRRIs require other universities to produce their fair share of matching funds since host universities are not able to subsidize them for the matching funds. As the matching requirement has increased, the program has become less attractive to other universities, especially private ones, who would rather use their resources to leverage federal funds from programs with lower matching requirements.

Training/Education. More than 30,000 students have been supported by working on Institute-funded research projects, and over 90% of them have stayed in water-related fields. Inflation has eroded the value of federal appropriations for the WRRI Program by a factor of three over the past 20 years, and as a result, the number of students supported by WRRI projects has declined from about 1,700/year in the early 1970s to about 600/year during the late 1980s. In conespecially those related to groundwater pollution. Several recent studies have concluded that a shortage of scientists and engineers trained in hydrogeology and aquatic chemistry will hinder efforts to protect groundwater. Expanding programs for water management and environmental protection at all government levels will require additional professionals in coming years. **Unless increased funds are available for graduate training in relevant fields, academic programs will not be able to attract enough students to fill these needs.** We recognize the role of states in funding graduate work in areas of critical need. At the same time, we note the long-standing role of the federal government in supporting graduate research and education in areas of national concern. Because federal agencies employ large numbers of water professionals, there is equity in the concept of federal assistance in training these individuals.

Information Dissemination. WRRIs are playing increasing roles in information transfer and in communication between academic researchers and research users in agencies and industry. Most WRRIs publish newsletters to communicate with professionals and the public. Many WRRIs publish circulars to explain water issues to the public, and some produce videos on critical water issues. The WRRIs develop and distribute technical reports, computer programs, and data bases useful to water scientists in academia, government agencies, and the private sector. Most WRRIs sponsor conferences that bring together agency managers, consultants, and researchers to discuss new findings and information needs. Institute directors serve on task forces in their states and provide communication links between academic researchers and management agencies. The information transfer accomplishments of the WRRIs are significant, but the Institutes are ready to do more. Consequently, we are seeking a more formal information transfer program in reauthorizing legislation.

Current Emphasis Areas of the Water Institute Program

Located in each state and in touch with local situations, the WRRIs are at the forefront in recognizing impending problems. For example, much public attention has been directed at the contamination of groundwater in recent years. The WRRIs recognized this emerging concern in the early 1980s and have directed an increasing proportion of their activities toward this area. WRRI programs funded 79 projects related to these problems in FY 1988, which ended in summer 1989. In the present year, 93 projects (over a third of all projects funded) are related to groundwater issues. Topics include transport of water and contaminants into aquifers, sources, levels, fate and effects of contaminants, management and prevention strategies, and remediation methods. Collectively the **WRRIs represent a significant, ongoing program in groundwater research**, and they would do more if more funds were available. The WRRIs also promote public education and information transfer on groundwater problems. Several Institutes sponsored workshops on these problems in the past year. The Midwest WRRIs held a successful regional conference in November 1989 to share information on the implementation of federal and state groundwater management strategies.

Water availability has re-emerged as a major problem. The current droughts are short-term examples of this issue; effects of global climate change is a long-term concern. WRRIs have funded research on drought management and water use efficiency for many years. Numerous accomplishments and examples of WRRI activities on these topics can be cited. For example, the North Carolina Institute developed a model that was used to manage water resources in the Raleigh-Durham area during the 1988 drought. Research in New Mexico is developing drought-resistant crops by use of biotechnology and genetic manipulation. A Mississippi project evaluated management strategies used nationwide during drought/emergency conditions. A project in Washington is producing a computer-based "expert system" to aid in drought management planning. Research in nine states is aimed at improving irrigation efficiencies for different kinds of crops. The Colorado Institute recently assessed the willingness of water managers and water users to commit public funds to achieve various levels of water supply reliability. Connecticut researchers developed a hydrologic model that can be used to predict local hydrologic changes for various climate change scenarios, and researchers in Connecticut and Minnesota currently are studying impacts of projected climatic changes on streamflows in those states.

Other emphasis areas for current research include nonpoint source pollution (17 projects in 1989-90), agricultural management practices in relation to water quality (12 projects), and fate and effects of pesticides in natural waters (27 projects). WRRIs also are important sources of funds for research on improved treatment methods. This is noteworthy since funds for such work from the U.S. EPA have diminished in recent years. Recent WRRI projects on treatment technology have developed methods to degrade toxic organic compounds by photocatalysis and to recover cyanide from wastewater by using hollow fiber membranes. Ongoing projects in five states are aimed at biological removal of nitrate from agricultural runoff, septic tank leachate and contaminated groundwater.

Recommendations

- We request $10 million in FY 1991 for the Institute Program (Section 104b of P.L. 98-242), providing each Institute with $185,000 to continue the federal-state cooperative effort that has been productive for 25 years.
- $5 million is requested for a new competitive Institute-USGS focused research program on critical regional water problems such as groundwater contamination and effects of climate change on water resources. This program is Section 104g of reauthorizing legislation pending in Congress.
- We request $10 million for the Section 105 program. About $40 million is requested annually by proposals to this program, and many worthwhile and needed studies go unfunded.
- To facilitate the transfer of research results, we request $2.7 million for Section 106 to enhance information transfer activities and initiate a formal information transfer program in the WRRIs.
- We request $800 thousand for USGS administration of the program and request that an amount equivalent to 1% of the 1990 Section 104 and 105 appropriations be allocated to analyze the accomplishments of the 1990 programs.

We recognize that these are austere times and that our request for increased appropriations does not make your budget-balancing task easier. However, we ask you to remember the serious needs for training and research on the nation's water problems and protection of its environment and the abilities of the WRRIs in solving these problems. We appreciate the support our program enjoys in Congress, and past support by this subcommittee. However, we want to remind you that the program has had level funding for many years and inflation has caused a serious funding decline in real terms. We are concerned that without Congressional adjustment for inflation-induced funding losses, the ability of the WRRIs to do the jobs expected of them is being diminished. We are reaching the point where the vitality of the program is being compromised. We are proud of the accomplishments of the WRRIs and stand ready to work with others toward the goal of clean and adequate water for everyone. On behalf of my colleagues and our organizations, I thank you for the opportunity to appear before you.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY CONSERVATION—ELECTRIC VEHICLES

WITNESS

ERIC BOCK, FEDERAL REPRESENTATIVE, LOS ANGELES DEPARTMENT OF WATER AND POWER

Mr. DICKS. Eric Bock of the Los Angeles Department of Water and Power?

How are you?

Mr. BOCK. Good morning. I'm fine, thank you.

Mr. DICKS. We're glad to have you here.

Mr. BOCK. I'm the Federal representative of the Los Angeles Department of Water and Power, LADWP, and I appreciate the opportunity to discuss the Administration's budget request for the DOE electric and hybrid vehicle research and development program.

I prepared a statement on behalf of Southern California Edison Company, Edison Electric Institute, and the American Public Association. We joined together to support development of electric vehicles and electricity as a transportation fuel.

We urge that the subcommittee support increased funding for the site operators and users task force. The Department of Energy has requested $1 million for the site operators program in fiscal year 1991. This is above the funding they sought last year, but it's still $360,000 below the actual fiscal year 1990 level. We believe the request is far less than the amount which could be utilized in air quality nonattainment areas to create an understanding of the performance of electric vehicles in a variety of urban settings, to identify associated infrastructure needs such as methods of servicing the vehicles, and to stimulate the creation of an electric vehicle market.

Electric vehicles have been a primary interest in the city of Los Angeles. We initiated a program called the Los Angeles initiative in which we're going to try to introduce 10,000 vehicles by the year 1995 in Los Angeles. The opportunity of that initiative will be to obtain commercial acceptance and remove market obstacles to electric vehicles in commerce.

It's an ambitious undertaking and we've put out an RFP. We've selected three companies to manufacture and market electric passenger vehicles, minivans, and full-size vans, but substantial financial assistance is going to be necessary, although we don't exactly have a nice number on that yet.

The site operators program will make a significant contribution to that effort. Both LADWP and Southern California Edison will be able to purchase cost-sharing funds through the site operators program in fiscal year 1990. These funds will be used to acquire and evaluate the vehicles produced as part of the response of the initiative, thus illustrating the importance of the site operators program in the implementation.

In many respects, our activities in California are likely to serve as a model for programs that may be adopted throughout the country as other nonattainment areas seek to meet the clean air requirements. Therefore, on a national scale, Federal energy and environmental policies should emphasize greater use of electric vehicles.

Electric vehicles promise significant improvements in air quality. In Los Angeles, for instance, we will not be able to meet the ozone carbon monoxide standards without electric vehicles. They will reduce the reliance on imported oil, give greater national energy security, and more efficient utilization of electricity being generated.

This technology is not likely to become available in commercial quantities in the near-term unless we pursue a parallel effort to accelerate both technology development, particularly in near-term battery and advanced cell research and development, and market understanding and the acceptance of electric vehicles as a dependable mode of urban transportation.

In regard to whether the Congress actually created a nationwide alternative fuels program in the Clean Air Act, which could be in jeopardy, there should be increased emphasis on Federal programs as well as State and local efforts, and we're working on those levels as well, to encourage electric vehicle technology, development, and use.

The site operators program should be one part of this coordinated approached. The appropriation of additional funds for the site operators program should facilitate further vehicle purchases. Greater funding could allow an additional number of entities participating in the program.

In the program, criteria for selecting new site operators should emphasize the environmental benefits of electric vehicle use, consistent with the direction given by Congress last year in this program. Increased funding would also allow for testing and evaluation of continually evolving electrical vehicle and battery technologies. The site operators program in fiscal year 1990 will permit the earliest possible evaluation of modern electric vehicles, including the electric G van in actual fleet applications.

The type of information generated through the program could be invaluable in meeting consumer needs for reliable performance data. Next year several new preproduction vehicles are expected to become available, including electrically-powered minivans, some operating on advanced nickel iron batteries; passenger vehicles that are purposely built as electric vehicles rather than modifications of convention technology; and test vehicles with the state-of-the-art sodium sulfur batteries. Funding for the site operators program should be increased to permit data analysis of these technologies as well, to provide needed feedback to manufacturers and information for potential users.

A commercially oriented Federal cost-sharing program that builds on the foundation laid by the site operators program is also needed. We endorse the legislation introduced by Representative George Brown and co-sponsored by Congressman Henry Waxman, Chairman Yates, and Congressman Bill Lowery. The act is called the Electric Vehicle Technology Development and Demonstration Act, H.R. 3852. It offers a needed expansion of the cost-sharing principle established by Congress last year as part of the site operators program.

Mr. Dicks. Okay, thank you. It was a good statement and we're glad to hear that this work is going on. We appreciate the fact that California, and Los Angeles in particular, have taken the lead on it.

Mr. Bock. Thank you.

Mr. Dicks. Good.

[The prepared statement of Mr. Eric Bock follows:]

Written Testimony
of the
Los Angeles Department of Water and Power
before the
House Committee on Appropriations, Subcommittee on Interior
March 8, 1990

This testimony is submitted on behalf of the Los Angeles Department of Water and Power (LADWP), the Southern California Edison Company, the Edison Electric Institute and the American Public Power Association. For several months we have been working together to advance the prospects for the commercialization of electric vehicles (EVs) in this country. The focus of this testimony concerns the role that the Site Operators User Task Force program of the Department of Energy's Electric and Hybrid Vehicle Research and Development Program can play in this important effort.

The Department of Energy has requested $1 million for the Site Operators program in fiscal year 1991. While we are encouraged that this request represents an increase above the amount DOE sought last year, however, it is still $360,000 below the FY 1990 funding level. We believe the request is far less than the amount which could be utilized in nonattainment areas to create an understanding of the performance of these vehicles in a variety of urban settings; to identify associated infrastructure needs, such as methods of servicing the vehicles; and to stimulate the creation of an electric vehicle market.

Electric vehicles should be supported as a response to the significant problem of mobile source emissions. Emissions from roadway vehicles -- cars, trucks and buses -- have been identified as a primary cause of nonattainment of air quality standards for ozone and carbon monoxide. While many advances have been made in reducing emissions from internal combustion engine vehicles, it is clear that other approaches must be developed if mobile source pollution is to be significantly reduced. Vehicle miles traveled are on the increase, producing increased emissions despite past technical advances, along with associated problems of traffic congestion, wear and tear on the roadways and noise pollution.

In the Los Angeles area, efforts to reduce pollution from mobile sources are a high public priority. The need to address motor vehicle emissions resulted in the "Los Angeles Initiative," a joint request for proposals developed by LADWP, the City of Los Angeles and Southern California Edison. The Initiative seeks to confront and resolve the market-based obstacles to the widespread use of electric vehicles that threaten to delay the availability of this much needed technology. It calls for the introduction of 10,000 electric vans, trucks and passenger cars into the South Coast Air Basin of southern California by 1995.

The Los Angeles Initiative is an ambitious undertaking for the sponsoring organizations as well as the manufacturers that will be involved. We have selected three companies -- Unique Mobility, Vehma, and Clean Air Transport -- to manufacture and market electric passenger cars, minivans and full size vans. But substantial financial assistance, estimated by the proposers to be in the millions of dollars, will be necessary to meet the goals of the program. The market response to the Initiative is far from assured. These are areas in which the Site Operators program can make significant contributions.

LADWP and Southern California Edison will both receive vehicle purchase cost-sharing funds through the Site Operators program in fiscal year 1990. These funds will be used to acquire and evaluate vehicles produced as part of the response to the Initiative, thus illustrating the importance of the Site Operators program in the implementation of the Initiative.

Acquisition of vehicles is only one aspect of the Site Operators program that is important to the Los Angeles area and the success of the LA Initiative. As part of our responsibility as site operators, LADWP, Southern California Edison and six other participants (GTE, Detroit Edison, Arizona Public Service, the U.S. Navy, the University of Hawaii and Sandia National Laboratory) will be conducting in-use testing and evaluation of new components and vehicle technologies. We will then supply DOE and the manufacturers with operational and maintenance data and performance evaluations of the vehicles.

In many respects, our activities in California are likely to serve as a model for programs that may be adopted throughout the country as other nonattainment areas seek to meet Clean Air Act requirements. Therefore, on a national scale, federal energy and environmental policies should emphasize greater use of electric vehicles. Electric vehicles promise significant improvements in air quality. The California Air Resources Board (CARB) has published emissions rates for several alternative fuels and comparisons of the emissions produced by alternatively-fueled vehicles to those of gasoline powered vehicles. The CARB results demonstrate that, even when the incremental emissions attributable to generating the electricity required to recharge the electric vehicles are considered, EVs offer the greatest reduction in emissions when compared to gasoline-powered vehicles of any alternatively fueled vehicle, and are virtually emission free during operation.

Electric vehicles also offer important benefits in terms of energy security. The transportation sector now consumes 60 percent of the oil used in this country. According to the Electric Power Research Institute, substitution of electric vehicles for each one percent of the vehicles currently registered in this country would save approximately 35 million barrels of oil per year and reduce our trade deficit by $1 billion annually. The use of electricity as a transportation fuel has the dual advantages of available supply and domestic production. Moreover, because electric vehicles would most likely be recharged at night, the electricity necessary for charging operations can be generated during off-peak hours, when plants might otherwise be idle, thereby making more efficient use of existing generating capacity.

Despite these important attributes, electric vehicle technology is not likely to become available in commercial quantities in the near term unless we pursue a parallel effort to accelerate both technology development -- particularly near term battery as well as advanced fuel cell research and development -- and market understanding and acceptance of electric vehicles as a dependable mode of urban transportation. If a nationwide alternative fuels program resembling that originally proposed by President Bush in his Clean Air Act bill is not adopted, there must be increased emphasis on other federal programs, as well as state and local efforts, to encourage electric vehicle technology development and use. The Site Operators program should be one part of this coordinated approach.

The appropriation of additional funds for the Site Operators program would facilitate further vehicle purchases. Greater funding could also allow for the expansion of the number of entities participating in the program. The Department of Energy is in the process of preparing guidelines for selecting additional participants in expectation of an increase in interest in the Site Operators program. Criteria for selecting new site operators should emphasize the environmental benefits of electric vehicle use, consistent with the direction of Congress last year, recognizing that market acceptance of electric vehicles may occur initially in nonattainment areas.

Increased funding would also allow for testing and evaluation of continually evolving electric vehicle and battery technologies. For example, in the fiscal year 1990 program, electric vehicles relying on modern lead-acid battery technology will begin limited service in fleet markets this summer with the commercial introduction of the full size electric G-Van. The G-Van's sixty mile range between charges is adequate for 40 percent of today's urban fleet cargo and passenger uses. The Site Operators program will include both preproduction and production model G-Vans, permitting the earliest possible evaluation of modern electric vehicles in actual fleet applications. The type of information generated through the program is invaluable in understanding and meeting consumer needs for reliable performance data.

In 1991, several new preproduction vehicles are expected to become available to the Site Operators program, including electrically-powered minivans, some operating on advanced nickel-iron batteries; passenger vehicles that are purpose built as electric vehicles rather than modifications of conventional technology; and test vehicles with state-of-the art sodium sulfur batteries. Some of these vehicles, even those powered by lead-acid batteries, are expected to achieve a range of as much as 150 miles, thereby expanding the market of potential uses and users. Funding for the Site Operators program should be increased to permit data analysis for these technologies, to provide needed feedback to manufacturers and information for potential purchasers.

A more commercially-oriented federal cost sharing program that builds on the foundation laid by the Site Operators program is also needed. We endorse the legislation introduced by Representative George Brown and cosponsored by Chairman Yates and a number of other members of the Committee, the Electric Vehicle Technology Development and Demonstration Act of 1990, H.R. 3852. This bill proposes a needed expansion of the cost-sharing principle established by Congress last year.

Despite years of technology development efforts, including efforts concentrating substantial public and private resources on vehicle design and battery research, electric vehicles for highway use are not commercially available today. A number of barriers that prevent this technology from reaching its full potential have been identified. While some are technical, the most difficult obstacles to overcome are market-based. Initial vehicle costs are prohibitively high, due to the lack of production capability. Without production in significant volumes, consumers are unwilling to commit to the acquisition of large numbers of the vehicles and therefore are unable to evaluate the performance of EVs in actual applications.

The creation of new incentives to overcome these barriers and spur the market acceptance of electric vehicles is essential if we are to overcome the "Catch 22" situation in which EVs are now caught. Additional funding for the Site Operators program, along with enactment of H.R. 3852, offers the means to begin to realize the benefits of widespread EV use and to eliminate existing barriers to market acceptance of this technology.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESS

DAVID L. McCRANEY, STATE OF WASHINGTON, CHAIR OF GOVERNOR BOOTH GARDNER'S OCEAN POLICY WORK GROUP

Mr. DICKS. The statement of Mr. David L. McCraney, representing the State of Washington? Is David still here? Yes, here he is.

Mr. MCCRANEY. In the interest of time——

Mr. DICKS. We'll put your statement in the record. We ask you to summarize in five minutes. I think I'm somewhat familiar with the subject matter.

Mr. MCCRANEY. Well, I'm glad.

Mr. DICKS. Good.

Mr. MCCRANEY. Thank you very much, Chairman Dicks. For the record, my name is David McCraney, and I'm the Chair of Governor Booth Gardner's Ocean Policy Work Group.

I want to begin my comments with an expression of thanks to this committee, and particularly its staff, for the help and guidance that you have given to the Northwest State and Tribal Governments over the past three years. With your aid, we have been able to set up the Pacific Northwest OCS Task Force and begin the development of the scientific information necessary to make reasoned Northwest OCS decisions.

Last year I appeared before you and stated that the Northwest task force should pursue the objective of reaching consensus on an environmental studies program and a realistic schedule for offshore energy decisions in the Pacific Northwest. I am here today to report that the task force has reached that consensus.

On February 12, 1990, the Pacific Northwest OCS Task Force, including the Minerals Management Service, unanimously adopted and sent to the Secretary of the Interior a resolution that, one, along with the report of its technical advisors to the task force, identifies five critical studies that are essential to reasoned Northwest OCS decisionmaking; two, ensures that Northwest OCS decisions are in proper sequence and can be based on real information, not arbitrary schedules; and, three, if adopted by the Secretary, the resolution offers an opportunity for certain pre-lease activities which are designed to narrow the focus of OCS decisions to proceed.

The February 12th resolution represents a tremendous step forward. We urge Secretary Lujan to join MMS, his own leasing agency, and the State and tribal governments in adopting and overseeing the resolution's cooperative implementation.

The task force is a new and unique organization. It has met only four times. Like all new organizations, it has encountered some hard times and made some mistakes. Overall, however, we believe it is succeeding. With your continued assistance, the task force can be an effective force to resolve Northwest OCS issues, move us beyond moratoria, and help avoid the contention and confrontation that have been so typical of the offshore energy program.

Before concluding, I will comment specifically on the scientific studies program. During its October 1989 meeting, the task force asked a group of highly qualified scientists to identify the scientific information we need for the Northwest OCS. The group responded by identifying five key studies focusing on near-shore ecosystems, physical oceanography, marine mammals and seabirds, socioeconomics and air quality. These studies should be conducted and serve as a basis for Northwest OCS decisions.

In closing, the State of Washington asks this committee's assistance in three specific areas. First, the Northwest task force needs your continued support. Second, we need the funds to complete the scientific studies in a timely manner and make the results known to the decisionmakers and the public. Finally, please join the State and tribal governments and the Minerals Management Service in urging the Secretary to adopt the February 12th task force resolution. If that resolution is adopted, cooperation and progress can continue. If it is rejected, the States and tribes must conclude that Interior isn't really serious about aggressive Northwest OCS concerns and we will face the inevitable battles and confrontations as the current appropriations process moves forward.

Again, thank you for the historic support this committee has given to our OCS efforts. I would be pleased to answer any questions.

Mr. DICKS. Well, what basically does the resolution—the resolution sets out its own time frame, its own agenda?

Mr. MCCRANEY. No, what the resolution does is adopt the study package presented to the task force, and that's included as page 6 of your paper there.

Mr. DICKS. Okay.

Mr. MCCRANEY. It says that the OCS—the draft environmental impact statement for what is currently lease-sale 132 should not commence until those studies that were recommended have been concluded. It says that no future sales should be put in what are now currently called the MMS five-year plans until those studies are concluded. Third, upon adoption by the Secretary, the task force has agreed to work with MMS to identify a request for interest notice that is specific to the Northwest, so that MMS can begin a survey of industry interest in the region. Those are the three things, three primary things.

Mr. DICKS. Give me that last one again—work with MMS to do what?

Mr. MCCRANEY. To do what they call a request for interest, which is an initial step in the leasing process for frontier areas. They would like very much to survey the energy piece of the puzzle.

Mr. DICKS. MMS would?

Mr. MCCRANEY. MMS would.

Mr. DICKS. And you don't want them to do that?

Mr. MCCRANEY. We would—we don't want the leasing process to start. I think they have a legitimate need to survey the interest. I think by using this modified request for interest, which would be different than any one they've ever done in the past because it would clearly state that this is not the beginning of the leasing process; that the companies needed to be specific with regard to area that they were interested in, instead of just a general request for interest where they say, "Yeah, we're interested;" that it would clearly contain the positions of the State and tribal governments with regard to the overall leasing process and with regard to areas that we thought ought to be excluded from any future consideration areas, like Olympic Park, Willapa Bay, Grays Harbor, and the mouth of the Columbia.

We think that a request-for-interest step, conditioned as it would be by the task force, is acceptable. We wouldn't want to see other steps before——

Mr. DICKS. Have you heard anything from the Secretary yet on this?

Mr. McCRANEY. We met with the Minerals Management Service this morning. The resolution is on the Secretary's desk. We were told we should expect an answer within 30 days. We have not heard from him, Congressman.

Mr. DICKS. All right. Well, I would hope you, as usual, would keep us well informed of what's going on. We'll continue to try to work with the State. We appreciate the hard work and leadership you've provided on this issue.

Mr. McCRANEY. Thank you very much.

[The prepared statement of David McCraney follows:]

Statement of Mr. David L. McCraney, Representing the State of Washington, Presented to the U.S. House of Representatives' Subcommittee on Interior Appropriations, Washington, D.C., March 8, 1990.

Mr. Chairman, Members of the committee, my name is David McCraney. I am the Chair of Governor Booth Gardner's Ocean Policy Work Group.

I must begin with an expression of thanks to this committee and its staff for the help and guidance you have provided to the Northwest's state and tribal governments over the past three years. With your aid, we have been able to create the Pacific Northwest OCS Task Force and begin development of the scientific information necessary to make reasoned Northwest OCS decisions.

The Northwest task force consists of the states of Oregon and Washington, the Northwest tribal governments and the Department of the Interior, represented by the Minerals Management Service (MMS).

Last year, I appeared before you and stated that the Northwest task force should pursue the objective of reaching consensus on an environmental studies program and a realistic schedule for offshore energy decisions in the Pacific Northwest. I am here today to report that the task force has reached that consensus.

On February 12, 1990 the Pacific Northwest OCS Task Force, including MMS, unanimously adopted and sent to the Secretary of Interior a resolution[1] that: (1) along with the report of the technical advisors to the task force, identifies five critical scientific studies[2] that are essential to reasoned Northwest OCS decision-making; (2) ensures that Northwest OCS decisions are in the proper sequence and can be made based on real information, not arbitrary federal schedules, and (3) if adopted by the Secretary, offers an opportunity for certain prelease activities, which are designed to narrow the focus of OCS decisions, to proceed.

The February 12th resolution represents a tremendous step forward. We urge Secretary Lujan to join MMS, his own leasing agency, along with the state and tribal governments in adopting and overseeing the resolution's cooperative implementation.

The task force has made significant progress in addressing Northwest issues. It has not, however, resolved all our concerns. It has not addressed the removal of the critical areas previously identified by the state and tribal governments from future OCS consideration. This must be the next agenda item for the task force! The task force has been unable to achieve the goal of bringing the OCS program into a national energy strategy. This is clearly beyond the scope of the task force and can only be addressed by the Congress and federal executive agencies.

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[1] Please see Attachment A. Page 3.

[2] Please see Attachment B. Page 6.

The task force is a new and unique organization. It has met only four times. Like all new organizations it has encountered some hard times and made some mistakes. We need, for example, to improve public involvement with the task force and develop an effective advisory body. Overall, it is succeeding. With your continued assistance, the task force can be an effective force to resolve Northwest OCS issues, move us beyond moratoria and help avoid the contention and confrontation that have become so typical of the offshore energy program.

Before concluding, I will comment specifically on the scientific studies program and February 12th resolution. During its October 1989 meeting the task force asked a group of highly qualified scientists to identify the scientific information we need for the Northwest OCS. The group responded by identifying five key scientific studies focusing on nearshore ecosystems, physical oceanography, marine mammals and seabirds, socioeconomics and air quality. These studies must be conducted and serve as a basis for Northwest OCS decisions.

Turning to the February 12 task force resolution, it has four key elements. First, the key scientific studies must be concluded before MMS begins preparation of a draft environmental impact statement for the Northwest. Second, no Northwest areas should be included in future five-year leasing plans until the studies are concluded. Third, the studies will be a basis for Northwest OCS decisions. Fourth, if the resolution is adopted by the Secretary, the task force will help MMS develop a request for information to survey industry interest in Northwest marine waters.

In closing, the state of Washington asks your assistance in three specific areas: First, the Northwest task force needs your continued support. Second, we need the funds to complete scientific studies in a timely manner and make their results known to decision-makers and the public. Finally, please join the state and tribal governments and Minerals Management Service in urging the Secretary to adopt the February 12th task force resolution. If that resolution is adopted, cooperation and progress can continue. If it is rejected or modified, the states and tribes must conclude that Interior really isn't serious about addressing Northwest OCS concerns, and we will face inevitable battles and confrontations as the current appropriations process moves ahead.

Again, thank you for the historic support the committee has given to our OCS efforts. I will be pleased to answer any questions or provide any additional information the committee requests.

APPENDIX A

RESOLUTION

TO

SECRETARY OF THE UNITED STATES DEPARTMENT OF THE INTERIOR

WHEREAS the States of Oregon and Washington, the member tribes of the Northwest Indian Fisheries Commission and the Columbia River Intertribal Fish Commission, and the United States Department of the Interior comprise the Pacific Northwest Outer Continental Shelf (OCS) Task Force; and

WHEREAS it is the objective of the task force to assist the Secretary of the Department of the Interior with the resolution of Outer Continental Shelf Lands Act (OCSLA) issues specific to the Northwest, and help develop coordinated programs and policies related to the potential leasing and development of oil and gas resources of the OCS off Oregon and Washington; and

WHEREAS the task force members are committed to working together to resolve Northwest OCS issues; and

WHEREAS Section 18 of the OCSLA calls for a "proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone;" and

WHEREAS the Interior Department's Minerals Management Service (MMS) has scheduled a lease sale (Sale 132) for the OCS off Oregon and Washington in November 1992; and

WHEREAS the Pacific Northwest's ocean resources are recognized for their unique national, regional, and international significance; and

WHEREAS the basic scientific information needed to make OCS leasing decisions includes a characterization of the environment and identification of the biological resources at risk, and such information currently is not available for the OCS off Oregon and Washington; and

WHEREAS such basic information is needed to permit the Secretary of Interior to fulfill his trust obligations to potentially affected Indian tribes: and

WHEREAS the technical subcommittee, established to advise the Northwest OCS task force, has recommended a number, duration, and priority of the studies necessary to develop the scientific information needed to make OCS leasing decisions offshore Oregon and Washington; and

WHEREAS the Northwest's OCS energy resources may be significant, but their location and extent are undetermined; and

WHEREAS the level and extent of industry interest in leasing oil and gas off Oregon and Washington is unknown.

NOW THEREFORE BE IT RESOLVED THAT the necessary scientific studies identified by the technical subcommittee shall be completed and analyzed prior to the preparation of the draft environmental impact statement for a Pacific Northwest lease sale; and

BE IT FURTHER RESOLVED THAT no lease sales in Pacific Northwest areas will be included in any future OCS leasing plans until those studies identified by the technical subcommittee of the Northwest OCS task force have been completed and analyzed; and

BE IT FURTHER RESOLVED THAT those studies identified by the technical subcommittee of the Northwest OCS task force will be used as a basis for any decisions as to whether, where, and when to proceed with activities related to OCS leasing off the Oregon and Washington coasts, and the timing of steps in any future Pacific Northwest OCS leasing program shall be agreed to by all members of the task force; and

BE IT FINALLY RESOLVED THAT upon acceptance of the foregoing resolution by the Secretary of the Interior, the task force immediately participate with MMS in developing a Request for Industry Interest in leasing off the Oregon and Washington coasts and approve such request before publication.

APPENDIX B

ENVIRONMENTAL STUDIES FOR WASHINGTON AND OREGON:

RECOMMENDATIONS OF THE TECHNICAL SUBCOMMITTEE TO THE PACIFIC NORTHWEST OUTER CONTINENTAL SHELF TASK FORCE

(1)
NEARSHORE ECOSYSTEM STUDY

The nearshore ecosystem study is a multidisciplinary field study designed to characterize vulnerable and sensitive habitats and species assemblages within the 50-meter depth contour, an area extremely vulnerable to the impacts of oil. The physical oceanographic work proposed as an essential part of the nearshore ecosystem study would develop an understanding of circulation processes that would distribute oil in the event of a spill offshore Washington and/or Oregon. This information is necessary to interpret biological observations. Concurrent monitoring of background levels of contaminants and diagnostic compounds in sediments and select biota will provide baseline information of pollutant contamination, essential for assessing long-term impacts of development. The study focuses on 4-5 localized study areas that typify the nearshore ecosystem of Washington and Oregon. Costs reflect totals for all study areas and coordination of field sampling programs to optimize use of ship time.

Component	Sampling Frequency	Habitat Types	Cost
Intertidal	2-season	3-4	$ 150,000
Nearshore Benthic	2-season	4	$ 400,000
Nearshore Fish/ Invertebrates	1/month	2-3	$ 600,000
Offshore Benthic	2/season	2	$ 250,000
Plankton/Neuston	6-8/year	1-2	$ 400,000
Toxicological Monitoring			$ 200,000
Scientific Coordination/ Integration			$ 150,000
Physical Oceanographic			

Support of Nearshore Ecosystem Study (measurements of strength and direction of along-shore transport, circulation properties near the seabed and upwelling characteristics)	$1,500,000
TOTAL	**$3,650,000**

(2)
PHYSICAL OCEANOGRAPHY

Component 1: Estuary/Coastal Exchange and Columbia River Plume Dynamics

These detailed programs focus on the interaction of the coastal ocean and adjacent estuaries on tidal, tidal monthly and seasonal time scales. They will contribute to an understanding of how oil spilled near the coast or transported there might be distributed by nearshore circulation processes.

Columbia River Plume Augmentation (A relatively small expenditure by MMS to supplement a major National Science Foundation project on the Columbia River plume can greatly increase our understanding the transport of oil.)	$ 240,000
Estuary/Coastal Exchange (This year-long detailed ocean/estuary exchange program will concentrate on an estuary with stronger marine influences and will begin in the third fiscal year based on information from the inter-annual variability component.)	$ --
	$ 240,000

Component 2: Interannual Variability

This program of four years duration examines a marine-dominated estuary and an intermediate one with both strong fluvial and marine influences. Data collected over the four year period will provide vital information needed to understand the interannual variablity of factors leading to the transport of oil in estuaries.

$ 500,000

TOTAL **$ 740,000**

(3)
MARINE MAMMALS/SEABIRDS

Component 1: Extension and Supplementation of Existing Survey Program
Increases the duration and intensity of sampling of the currently-funded MMS survey program to provide basic information on distribution, abundance and critical habitats of marine mammals and seabirds offshore Washington and Oregon.

$ 750,000

Component 2: Seabird Colony Research Program
Monitors selected colonies for variability in abundance, reproductive success, colony structure and nearshore feeding patterns over a five-year period.

$ 240,000

Component 3: Seabird Life History Research
Concurrent with the seabird colony research, this component focuses on establishing detailed life histories of several individual indicator species.

$ 150,000

TOTAL **$ 1,140,000**

(4)
SOCIOECONOMICS

Component 1: Expand Scope of Existing Recreation and Tourism Study

This component would supplement the current MMS-funded study by adding a ~~critical~~ economic evaluation using structured surveys.

$ 235,000

Component 2: Coastal Community Impacts

This study identifies coastal community impacts resultant from possible OCS oil and gas development and production in Washington and Oregon, examining direct and secondary consequences upon the human environment associated with selected communities.

	$ 125,000

Component 3: Extension of Basic Analysis of Indian Tribal Dependencies on Coastal Resources and Activities Potentially Affected by OCS Development

We recommend extension of the present study to include Indian tribes of WA/OR not part of the first phase.

	$ 200,000
TOTAL	**$ 560,000**
TOTAL STUDIES PACKAGE	**$6,090,000**

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESS

ELDON HOUT, STATE OF OREGON

Mr. DICKS. Now we'll hear from the State of Oregon Eldon Hout?

Mr. HOUT. Correct, Mr. Chairman.

Mr. DICKS. It's nice to have you here.

Mr. HOUT. Thank you, Mr. Chairman. My name is Eldon Hout. I'm the manager of Oregon's ocean resources management program. Part of my assignment is to work with Minerals Management Service for Governor Neil Goldschmidt.

I want to associate myself and the State totally with the comments that Dave McCraney made on behalf of the State of Washington and really for the task force. We have a long history of interaction with the State of Washington and the tribal governments as well. As you know, Mr. Chairman, Oregon, Washington, and the tribal governments have articulated a unified position for the last three years on this issue.

Let me jump to some observations and to reiterate what Dave said, that this committee deserves the thanks of the citizens of Oregon and Washington. You created a forum where, working together, the States, the tribal governments, and Minerals Management Service may well be on the verge of establishing a rational process for OCS decisionmaking. All of the task force members, including Minerals Management Service, agree that adequate scientific information is a necessary prerequisite for reasoned decisionmaking. Because of that, we believe that it would be irresponsible for Interior to stay on its leasing fast track.

We have gone through three budget cycles with this committee, a presidential election, two Interior Secretaries, three Minerals Management Directors, and, unfortunately, an oil spill or two. We're very close to agreement with Minerals Management Service.

Adoption of the resolution by Secretary Lujan will establish a process and a sequencing of events where we can discuss and analyze OCS development in the Pacific Northwest. We believe that acceptance of the task force resolution by the Secretary will demonstrate what we hope is a new tradition of honoring congressional mandates to balance America's environmental protection and energy production needs.

In conclusion, let me say that some of you may remember—Mr. Chairman, you'll remember—that the concept of lease-sale moratorium has not been the preferred position of the two governors. The two governors have come under heavy criticism for not adopting that policy three years ago or subsequently.

On the other hand, the governors have never believed that the traditional lease-sale planning process used by Minerals Management Services in mature and oil-producing areas such as the Gulf make much sense in Oregon and Washington. What we have is innovation. Innovations are not easy. They are not easy at any level of government, but we have been struggling for three years. We think we've got a new process that does the public's business better.

The agreement on the task force recommendation of decision-making based on sound, scientific information, reasoned analysis, as opposed to what we thought was an irrational lock-step process designed for other areas and for other periods of time, is within reach. I think it's important to put in the record that the new leadership at Minerals Management Service should be complimented for supporting the position of the two States and the tribal governments.

We've gone to the Secretary with a unified position. We would urge this committee to make their views known to the Secretary as to the importance with which this resolution, this approach is held by the States. We think that implementing this resolution will enhance the ability of all parties to meet ocean stewardship responsibilities in the broadest context.

I'd be happy to answer questions.

Mr. DICKS. Let me ask you this: are you saying now that, if they agree to go along with your resolution, that the position of the State of Oregon is that they would prefer, then, not to have a moratorium?

Mr. HOUT. There would be no need for a moratorium.

Mr. DICKS. Could you explain that?

Mr. HOUT. The effect of the resolution would be to place—put in process a series of study requirements that would take anywhere from 7 to 10 years to complete. At that time, based on those studies and the analysis of those studies, which would be made available to all parties, the governors could make a decision as to when, whether—and that's an important point to underscore, "whether"—or where to proceed with leasing activities.

Based on the information, the governors would make the decision——

Mr. DICKS. Where would they get the authority to make the decision on whether?

Mr. HOUT. Well, obviously, they wouldn't, but they would be able to make the decision as to whether they would support a lease-sale, whether they would support a moratorium or a ban, or some other option. But the problem that we have had in the Pacific Northwest is we simply don't have the information necessary for a reasoned decision about oil and gas leasing.

Mr. DICKS. How do you explain to the people of Oregon—why should California be protected by a presidential decree made in the midst of a political campaign and the States of Washington and Oregon should continue to deal with a process that some people feel has already been politicized?

Mr. HOUT. Mr. Chairman, the governors asked that Oregon and Washington be included.

Mr. DICKS. And they weren't——

Mr. HOUT. And they were not.

Mr. DICKS. What other State was it? Florida, too, was protected during the campaign?

Mr. HOUT. Yes, two lease-sales in California and one in Florida. We were here when that decision came out.

Mr. DICKS. What about section 132? You in Washington State have made a very strong case about the sensitivity of the 132. Now I must tell you, if they do not go along with the resolution, I frankly think this committee will impose a moratorium. If they do, then we'll have to take a look at it. I'm not certain what will happen at that point, but we want to keep up the dialogue. We appreciate what you're trying to do. We understand that you believe it's a rational approach, but the question is, Are we dealing with a rational situation? That's something that the Congress will have to decide ultimately.

Thank you.

Mr. HOUT. Thank you, Mr. Chairman.

[The prepared statement of Eldon Hout follows:]

TESTIMONY

March 8, 1990

BY: Eldon Hout, Representing the State of Oregon

BEFORE: Subcommittee on Interior and Related Agencies
House Committee on Appropriations
B-308 Rayburn Office Building
Washington, D.C. 20515

SUBJECT: Department of the Interior, Minerals Management Service
FY 91 Budget

Mr. Chairman, Members of the Committee, my name is Eldon Hout. I am the manager of Oregon's Ocean Resources Management Program. Part of my assignment is coordinating with the Department of the Interior's Minerals Management Service regarding oil and gas exploration and specifically Lease Sale 132 for Governor Neil Goldschmidt.

I am here today with my colleague Dave McCraney from the state of Washington to talk to the Committee once again about our two states' interaction with MMS. As committee members know, Governors Goldschmidt and Gardner have been working together on the Oregon-Washington Lease Sale issues for the last three years. Mr. McCraney and I have appeared before the Committee in 1988 and 1989.

I would like the record to show Oregon concurs with the statement presented by Mr. McCraney. The two states and the Northwest tribal governments have always articulated a unified position regarding OCS leasing in the Pacific Northwest.

Let me make several observations:

Dave McCraney has described the history of the Pacific Northwest OCS Task Force, which is essentially the creation of this committee.

This committee deserves the thanks of the citizens of Oregon and Washington. You have created a forum where, working together, the states, tribal governments and MMS may well be on the verge of establishing a rational process for OCS decision making.

The Task Force's Resolution of February 12, is simple and straightforward. It calls for: 1) the completion and analysis of five key scientific studies focusing on nearshore ecosystems, physical oceanography, marine mammals and seabirds, socioeconomic considerations and air quality before preparation of a draft environmental impact statement; 2) no inclusion of any future OCS lease sale for Oregon-Washington until the studies are concluded and analyzed; 3) studies to be used as a basis for any decision as to when, whether or where to proceed with leasing activities. If the resolution is adopted by the Secretary, the Task Force would participate in developing a request to survey industry interest in leasing in northwest waters.

Now that all Task Force members, including Interior's Minerals Management Service, agree that adequate scientific and environmental information is a necessary prerequisite for reasoned OCS decision making, it would be irresponsible for Interior to stay on its leasing fast track.

After three budget cycles, a presidential election, two Interior Secretaries, three MMS Directors and, unfortunately, maybe an oil spill or two, we believe we are close to agreement with MMS. Adoption of the Task Force resolution by Secretary Lujan will establish an appropriate process and sequencing of events by which all parties can discuss and analyze OCS development in the Pacific Northwest. Acceptance of the Task Force resolution by the Secretary will demonstrate what we hope is a new tradition of honoring congressional mandates to balance America's environmental protection and energy production needs.

In conclusion, let me say that I hope some of you will remember that the concept of a lease sale moratorium has never been the preferred policy of the two Governors. You should know that both Governors have come under heavy criticism from some quarters for not taking the moratorium option three years ago. On the other hand, the Governors have never believed that the traditional lease sale planning process used by MMS in mature, oil producing areas such as the Gulf of Mexico made much sense for frontier areas such as Oregon-Washington. Establishing innovative or even new ways to do the public's business is not easy at any level of government. We have come to learn just how difficult it is to effect change in an established, albeit controversial national program.

The Governors truly believe that the approach recommended to Secretary Lujan by the Pacific Northwest OCS Task Force is a better and more reasoned way to protect, conserve marine resources of all types in the OCS.

Agreement on the Governors' option of decision making based on sound, scientific information and reasoned analysis, as opposed to an irrational, lockstep process designed for other times and other areas, is within reach for the first time. The new leadership at MMS should be complimented for supporting the position of the two states and the tribal governments.

On behalf of the Governor of Oregon, let me ask all of the committee members to urge Secretary Lujan to join with the states of Oregon and Washington, the Northwest tribal governments, and his own leasing agency and agree to the resolution. Implementation of the resolution will enhance the ability of all parties to meet their ocean stewardship responsibilities.

Thank you again for the opportunity to appear and tell you about relate what could be a real success story and may even be a model process for other areas. I will be pleased to answer your questions.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESS

RICHARD SANDE, STATE OF WASHINGTON, PACIFIC COUNTY; REPRESENTING THE WASHINGTON STATE COASTAL COUNTIES OF CLALLAM COUNTY, JEFFERSON COUNTY, GRAYS HARBOR COUNTY, AND PACIFIC COUNTY

Mr. DICKS. Okay, is Richard Sande here? Richard, come on up. From Clallam County, Jefferson County, Grays Harbor County, and Pacific County, Washington State Coastal Counties.

We're glad to have you here.

Mr. SANDE. Thank you. Mr. Chairman, my name is Richard Sande, and I'm a county commissioner from Pacific County, which is located in the southwest corner of the State of Washington.

Mr. DICKS. I know it well.

Mr. SANDE. Great. Bordered on the south by the Columbia River and to the west by the Pacific Ocean. I am here representing Washington State Coastal Counties, which as you have alluded to, includes Clallam, Grays Harbor, Jefferson, and Pacific counties. These counties are contiguous and make up the entire coastline of the State of Washington. We are working together to prevent the implementation of lease sale 132. The effort has been pursued in concert with the Department of Ecology for the State of Washington and with the Northwest OCS Task Force.

The legislative authorities in these counties have drafted and presented to our congressional delegation a resolution which calls for the complete abandonment of any exploration, offshore drilling, or mining off the coast of Washington. On November 17, 1989, the Washington Association of Counties, which encompasses representation of the legislative authorities from all 39 counties of the State of Washington, submitted to our congressional delegation resolution 89F-1, which is attached to your document. This resolution opposes any and all exploration off the coast of Washington or Oregon.

The legislative authorities of all 39 counties of the State of Washington have spoken very dramatically and decisively on the issue of offshore exploration, production, and offshore mining. The coast of Washington is unique in its makeup in that there are two definite ecological and biological systems operating on the shoreline and in the waters off the coast. It is important that this committee understand these systems and how they interrelate before granting funding for lease sale 132.

We have heard far too many assurances and promises from oil companies that their process is safe and any accident or incident will do very little, if any, to destroy the ecological or biological systems of the area which is contaminated. History and recent events have shown this not to be the case.

Off the coast of Washington we have large spawning areas for a variety of fin fish, including cod, bass, salmon, and a variety of other species. We also have large shrimp and crab industries which traverse the entire coastline of the State of Washington.

Also, within the boundaries of the Washington coast are the Grays Harbor estuary and the Willapa Bay estuary. Both are located in the southern half of the coastal area of the State of Washington.

Several smaller estuaries are located to the north. The Willapa Bay estuary is one of the last truly pristine bodies of water of its size left in the United States. A major oyster industry flourishes in these waters.

Any incident or accident which occurs anywhere along the coast of Washington will have far-reaching, if not irreversible consequences on the people of the State of Washington and these industries. I think it is very clear from the resolution and from the voice of the people of the State of Washington that they do not want exploration or offshore drilling.

You and I as elected officials will continue to discuss and debate with environmentalists and with the industry people about the pros and cons of the potential exploration and development of offshore oil drilling and mining. It is important to understand that the coastal counties and the remainder of the counties of the State of Washington do not feel that this is the issue. The paramount issue is that we do not want under any circumstances oil exploration or drilling in the waters off the coast of Washington.

The potential for irreversible damage is too great, and such a disaster would create a dramatic reduction in employment and a negative impact on the economic stability of the State of Washington. Our fishing and aquaculture industries, as well as our tourist industry, which generates approximately a quarter of a million dollars a year, are highly dependent upon pristine waters for their survival.

We have expertise. We have experienced oil-related incidents in the past from which we are still realizing the dramatic biological and financial results. We cannot tolerate, nor can we afford, to experience this kind of situation on a large scale or, in fact, on any scale along the coast of Washington.

It is imperative that all technical studies be completed and evaluated before any future consideration be given to lease sale 132. At this point, there is a dramatic void in the availability of technical data, which only creates more questions and concerns over the validity of lease sale 132.

You and I have been elected to serve the people. Granted, your area of service is far greater than mine, but I believe that our goals and aspirations for the future and for our children are the same. We have been given the weighty task as the stewards of the lands and waters of this country.

I hope that when you look at the facts presented to you, that you will consider the waters off the coastline of Washington as being a prime example of how this stewardship can best be utilized in the protection and enhancement of existing resources by denying in perpetuity lease sale 132.

This denial will only protect what we Washingtonians have always believed to be a natural treasure and an economic mainstay to the State of Washington, those waters adjacent to and off the coastline of our State.

Thank you.

Mr. DICKS. Well, as someone who was born and raised in Washington State, I understand exactly how you feel about this. In fact, when there was the barge incident, that came right back into Puget Sound and got all the way to Protection Island, an island that this committee provided funding to protect. So, I understand the sensitivity.

Now let me ask you: how do you feel about the position that the State is taking on this issue?

Mr. SANDE. Our feeling, as far as the coastal counties are concerned, is that we do not want to pursue any further oil exploration or drilling off the coast of Washington. If a moratorium or a complete cessation of that cannot be achieved, then we certainly would concur with the task force in their efforts for the resolution.

Mr. DICKS. So you would prefer a moratorium to the resolution?

Mr. SANDE. At this point, we would——

Mr. DICKS. But what about the fact that was made that if the resolution is put into place, they'd be studying this issue for the next seven years and really answer some of the questions that you in your statement suggest we don't have answers to?

Mr. SANDE. That's correct, and that would be the position of——

Mr. DICKS. That's something we'll have to think about.

Mr. SANDE. Right; and that would be the position of the counties on the coast, Mr. Chairman, is that——

Mr. DICKS. You'd like to have it both ways; right?

Mr. SANDE. I'd like to have it both ways.

Mr. DICKS. Do the research, find out what's going on, but have some protection at the same time?

Mr. SANDE. That's absolutely correct.

Mr. DICKS. That's the way most people come to this committee. [Laughter.]

Mr. SANDE. Our feeling, candidly, is that we can have the resolution and the resolution is signed by the Secretary, that will certainly give us time to evaluate our options and to look at the data——

Mr. DICKS. Do you feel like you've been properly consulted in this process? Has the process been open?

Mr. SANDE. Completely. Our relationship with the Department of Ecology in the State of Washington and the OCS task force has been open and candid, as far as I'm concerned.

Mr. DICKS. This committee has provided the resources, the funding, for that process and we have supported it. It's just a question of how far down this road we want to march before we decide what we're going to do.

My opinion is that the coast of Washington is a national treasure and that we ought to be very careful about what we do here. So, we'll stay in touch, and I'd appreciate your staying in touch with our office as we look at this issue later this year.

That's a point we have to make, too, on the record: we can't do a perpetual moratorium. We have to do it on a year-by-year basis, which we've tried to do from time to time to try to get the parties together and get them working together. That's had an effect, a positive effect, in the past.

We'll be in touch with you. We appreciate your testimony very much.

Mr. SANDE. Thank you, Mr. Chairman.

Mr. DICKS. The committee will be in recess until 1:30.

[The prepared statement of Richard Sande follows:]

WASHINGTON STATE COASTAL COUNTIES

Clallam County, Jefferson County, Grays Harbor County, Pacific County
2109 Sumner - Aberdeen, WA 98520

TESTIMONY BEFORE DEPARTMENT OF INTERIOR
WASHINGTON, D.C.
MARCH 8, 1990

The Coastal County Coordination Program was established in April 1989 to preserve the long term economic growth of coastal communities through the conservation of renewable marine resources. This purpose is achieved by providing a regionwide response to state and federal programs affecting the marine environment in support of the Coastal Counties' multimillion dollar fishing and tourism industries.

The economy of the coastal counties (Clallam, Jefferson, Grays Harbor, Pacific) has historically depended on the sustained harvest of terrestrial and marine resources. The impending shortages which face the timber industry now emphasize the importance of the marine environment's ability to support the future growth of the fishing and tourism industries.

Several events over the past year and pending state and federal legislation affecting the Washington Coast have led to the creation of the Coastal County Coordination Program. Foremost, were the oil spills off Grays Harbor, Washington and Prince William Sound, Alaska which provided the Coastal County Commissioners with graphic examples of the threats posed to their coastal resources and economies by the transportation and exploration of oil and other hazardous substances off the Washington Coast.

The Coastal County Commissioners appreciate the Task Force's willingness to have our participation on the Technical Subcommittee. However, we would also like to be represented on a Policy Committee, for after all, we are the ones most directly subject to the impacts of OCS development.

The Coastal County Coordination Program passed a resolution which has been adopted by the entire Washington State Association of Counties urging Congress to permanently protect the coasts of Washington and Oregon from oil and gas development. In addition, the National Association of Counties will be addressing similar provisions at their next meeting this March in Washington, D.C..

We base our opinion on extensive background research and the information presented in the MMS's Final Impact Statement on the current 5 Year Program which amply documents that we have far more to offer the nation in fisheries and recreational opportunities than we do in oil and gas resources.

It just does not make sense for us to jeopardize our $100 million in fisheries caught off the coast and $150 million in tourism generated annually (in the four coastal counties) for 25 years worth of polluting development which has a 20% chance of producing less than a weeks worth of the nation's energy needs.

The Washington State Energy Office estimates that Washington State consumes 130 million barrels of oil annually. Whereas MMS estimates that lease sale #132 may produce 180 million barrels. According to Mike Watson, director of the Washington State Energy Office, Washington State can generate the same amount of oil MMS hopes to find off our coasts in 25 years by increasing the fuel efficiency of our automobiles from 27.5 to 29.5 over the next 10 years.

Washington State has already begun to make significant commitments to energy conservation by passing more stringent requirements on housing insulation. Improvements in energy efficiency such as these has resulted in Washington State spending $3 billion less a year and producing 30 million tons a year less carbon dioxide than we would have at 1972 levels of energy consumption. In addition, the Bonneville Power Authority plans to increase its annual investments in energy conservation by 75% over the next few years to $120 million a year in 1992-1993. The Northwest Power Planning Council notes that improved energy efficiency is the most cost effective means of generating electricity. The BPA predicts they can acquire a total of 200 megawatts of conservation between 1992 and 1997.

Such figures demand that MMS provide a rationale for why we should jeopardize our renewable resources by completing a least cost National Energy Policy which includes the total societal costs of supplying energy. However, it is with great dismay that we note the Department of Energy's budget for conservation has been cut by 50%.

We agree with the need for more information about our coastal resources as outlined by the Technical Subcommittee regardless of whether a lease sale is conducted. The reason for this is that the oil industry continues to use the accident prone aged fleet of single hull tankers to transport Alaska's north slope crude along the coast. However, we disagree that additional information will make the idea of OCS development off such a biologically rich and environmentally sensitive coastline any more justifiable.

Although MMS continues to disassociate itself from accidents caused by tankers they plan on moving any oil found in lease sale #132 onshore via tankers. In addition, the most recent incident marring America's coastline along Huntington Beach, occurred at an offshore marine terminal which is inextricably associated with offshore oil production. Accidents are even more likely to occur off the WA/OR Coast because of our harsh sea state and recent estimates which predict the occurrence of earthquakes in excess of 10 to 300 times the magnitude of those that have occurred in the United States.

We are currently working with NOAA and the entire Washington congressional delegation to establish National Marine Sanctuaries and National Estuarine Research Reserves along the coast to further our knowledge of coastal resources and to protect them for future generations. Given the single purpose mandate of the MMS to explore for oil and gas, we prefer to seek funding for coastal research from NOAA. In addition, the states, tribes and counties of Washington and Oregon continue to invest millions of dollars to enhance our fisheries and tourism industries.

The Coastal Counties are currently developing a Regional Ocean use Planning Document to be incorporated in Washington State's Ocean Use Guidelines. We are in the process of establishing land use ordinances which will not enable a shorebased support facility for offshore oil gas development be sited in our counties if it is found to hurt our existing marine dependent industries. In addition, if MMS does not agree to drop lease sale #132 from the current and following 5 Year Program, we will work with congress to assure that our entire coast is afforded permanent protection as has been proposed by the 24 co-sponsors of the Ocean Protection Act.

Since there is not a National Energy Policy currently in place, we feel that the Request for Industry Interest and lease sale #132 should be cancelled indefinitely. Finally, we urge that if MMS agrees to such provisions that they be ratified by Congress in the appropriation legislation.

Thank you for your consideration of our concerns.

Signed,

Dick Sande

Dick Sande-County Commissioner
Pacific County, Washington

COASTAL COUNTY COORDINATION PROGRAM STEERING COMMITTEE:

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WASHINGTON STATE ASSOCIATION OF COUNTIES
RESOLUTION 89F-1

OPPOSING OFFSHORE OIL EXPLORATION AND DEVELOPMENT ALONG THE NORTHWEST PACIFIC COAST

WHEREAS, Washington State has one of the most productive and unspoiled ocean coastlines in the world, and

WHEREAS, that coast and its estuarine ecosystem are a resource of state, national and worldwide significance, and

WHEREAS, the economics of all Washington coastal counties is tied to the productivity and beauty of their coastline, and

WHEREAS, oil exploration and development pose unknown and unacceptable risks to this important and fragile state resource, and

WHEREAS, an oil spill off the coast will affect all Puget Sound counties, as well as the coastal counties, and

WHEREAS, the coastal counties of Washington have determined to stand together in strict opposition to any and all exploration and development of oil off the coast of Washington and Oregon, and

WHEREAS, the counties of Washington State believe the risks of offshore oil exploration and development to be unacceptable,

NOW, THEREFORE, BE IT RESOLVED that the counties of Washington State stand together in opposition to any and all oil exploration off the coast of Washington and Oregon, and further; and

THEREFORE, BE IT FURTHER RESOLVED that the Washington State Association of Counties urges the Governor, the State Legislature, the Washington State Congressional Delegation, and the President of the United States to do whatever is necessary and in their power to prevent any and all oil exploration off the coast of Washington and Oregon.

Adopted this 17th day of November, 1989.

WASHINGTON STATE ASSOCIATION OF COUNTIES

President

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR BUREAU OF MINES—MINERAL INSTITUTES

WITNESSES

DONALD L. WARNER, DEAN, SCHOOL OF MINES AND METALLURGY, UNIVERSITY OF MISSOURI-ROLLA,

J. BRENT HISKEY, ASSISTANT DIRECTOR, DEPARTMENT OF MINERAL RESEARCH AND TECHNOLOGY, UNIVERSITY OF ARIZONA

Mr. ATKINS. The hearing will come to order.

The first witness panel is the National Association of State Universities and Land-Grant Colleges, Don Warner and Brent Hiskey.

We have your written testimony that will be entered into the record. You have five minutes.

Mr. WARNER. Thank you, Mr. Chairman. My name is Don Warner. I'm dean of the School of Mines and Metallurgy at the University of Missouri at Rolla. I'm representing the mineral resources committee of the National Association of Universities and Land-Grant Colleges.

Dr. Hiskey is director of the Mineral Institute of the University of Arizona and representing the National Association of Mineral Institute Directors.

We appreciate the opportunity to provide this testimony, and we appreciate the past support of this committee. I would like to remind the committee that this program is the only significant federally-funded program in mine and extracted metallurgy. There are no other significant sources of Federal funds to support that training and research in that area.

The program consists of two parts: an allotment grant portion which supports all 32 mineral institutes. The funds are used principally for fellowships, scholarships, and research initiatives. That program requires two non-Federal dollars matching for each Federal dollar.

The second part is the research program which is run through four original generic centers that were established in 1982 and two others that were since created by Congress. Current appropriations for the program are $136,000 per institute, or a total of $4,350,000, approximately, and about $4 million for the generic center research program. Additional appropriations then: a small appropriation for the administration of the program and appropriations for the respirable dust and marine minerals technology centers.

We would like to—well, I think you may be aware that for the first time in nine years the Administration has included a budget request for this program. It's for the research area. It would support the four original generic centers and their affiliates and also provide funding for the administration of the program.

Mr. ATKINS. You're happy with the Administration request?

Mr. WARNER. Yes, sir, we support that Administration request. We also would request funding for respirable dust and marine mineral technology centers, which are separate line-item- funded programs.

Of course, we also—and of the highest priority—would request funding for the allotment grant program. That really is the heart of the mineral institute program.

Mr. ATKINS. So your highest priority is for the allotment?

Mr. WARNER. It has to be. That provides support for all 32 institutes. In fact, what we would like to do is respectfully request an increase in the funding for that program.

The last 10 years funding for that——

Mr. ATKINS. An increase above what the Administration has requested?

Mr. WARNER. Well, the Administration did not request funding for the allotment grant program. They requested funding for the research portion.

Mr. ATKINS. So you're not happy with the Administration——

Mr. WARNER. Well, we're happy with what they did.

Mr. ATKINS. But you're diplomatic about it?

Mr. WARNER. No, we're happy with what——

Mr. ATKINS. You're happy with what they did; you just want more?

Mr. WARNER. Well, we want—we need the funding for the other part of the program, is basically what we're saying.

In fact, the research program, it would be hard to visualize how the research program would exist without the allotment grant program, because the allotment grant program creates the—funds the institutes through which the research program is run.

What we're asking for is an increase to $250,000 per institute for the allotment grant program. Actually, that would only restore the spending ability that we had 10 years ago. Funding for that program has been flat for 10 years. The cost of supporting, for example, a single fellowship has doubled in that time. So we're really asking for restoration of the spending ability that we had in the allotment grant program around 1980.

Mr. ATKINS. Tell me, though, why should we, assuming you realize all the pressures——

Mr. WARNER. Sure.

Mr. ATKINS. [continuing]. On this committee and the Administration—

Mr. WARNER. Certainly.

Mr. ATKINS. Certainly there isn't anybody who's come in and expressed—there are a few instances, but they've been very rare where they've said that they want less than what the Administration put in for.

Mr. WARNER. Sure.

Mr. ATKINS. But, given the scarce resources, why doesn't it make sense for us to focus our efforts on the research grant portion which is competitive, instead of on the allotment grant which really supports base-level activities with the land-grant colleges?

Mr. WARNER. Well, I think our position would be that it's that base-level activity from which the strength for the research program comes.

Mr. ATKINS. But shouldn't that be the responsibility of the States?

Mr. WARNER. Well, the States are providing—States and other sources are providing $2 for every single Federal dollar that goes into the program. If we had, for example, what we're requesting, an allotment grant appropriation of $250,000 per institute, that would require a $500,000 match in non- Federal dollars.

I think it's a very cost-effective program for the Federal Government.

Mr. ATKINS. Well, I suppose that's one way to look at it. The other way you could look at it is that there's sufficient support so that it makes sense for us to focus on specific research and specific projects which are high priority on the Federal side and allow the States to finance—the States have the principal responsibility for finance of the base level of research and the overhead, and so forth, in the various schools of mines and engineering schools where this money has gone.

Mr. WARNER. Well, again, I can't argue with that general philosophy other than to say that, again, it is the mineral institute program that provides the base—the allotment grant program which provides the base from which an effective research program can be launched. In fact, it is the—each one of these generic centers has a series of affiliates. For example, MIT is an affiliate——

Mr. ATKINS. You just happened to pick that one?

Mr. WARNER. Just happened to pick it, yes. It's been an affiliate of the metallurgy program that is centered at the University of Missouri, Rolla, since its inception. Again, I think that the strength from which the research programs can be effectively conducted derived from the basic allotment grant program.

Mr. ATKINS. But, quite candidly, MIT has sufficient internal resources that they can sustain—there's no reason why the Congress of the United States should be sustaining the sort of base-level and overhead costs at MIT. I can see if there's something, say respirable dust, where there is a specific strong Federal interest, then the Federal Government should sponsor research there and allow MIT to compete. But, even though it's close to my district and to my heart, I think we're in a position where we have to establish Federal priorities.

Mr. WARNER. Sure. I would agree with that. I think we all would agree with that. I think I'll have to leave it to the folks at MIT to convince you of their need and the effectiveness of their program.

Mr. ATKINS. Let me tell you that I'm sure you're a top-rate metallurgist and I'm sure that you're also a—I know that you're an excellent politician. I'd say that you've handled—I've tried to put you in every trap I could and you've managed to escape.

I appreciate your comments. I appreciate the good work that you do. As I'm sure you're aware, this committee has historically been strongly supportive of the program.

Mr. WARNER. And we appreciate that.

Mr. ATKINS. Thank you.

Mr. WARNER. Thank you

Mr. HISKEY. Thank you.

Mr. ATKINS. You ought to switch over and take an adjunct position at least in the political science department as well. [Laughter.]

[The prepared statement of Don Warner and Brent Hiskey follows:]

Testimony Presented
Before
Committee on Appropriations
United States House of Representatives
Subcommittee on Interior and Related Agencies

by
Dr. Don L. Warner, Dean
School of Mines and Metallurgy
University of Missouri-Rolla

and

J. Brent Hiskey, Director
Arizona Mining and Mineral Resources
Research Institute
University of Arizona

for the
Mineral Resources Committee
National Association of State
Universities and Land Grant
Colleges

and the
National Association of
Mineral Institute Directors

March 8, 1990

INTRODUCTION

We submit this statement on behalf of the participating colleges and universities supporting appropriation of funds for the State Mining and Mineral Resources Research Institute Program as reauthorized, in 1988, through P.L. 98-409 as amended by P.L. 100-483.

Support for university mineral programs comes through State-Federal-Industry funds and the Mineral Institute Program remains as virtually the only Federally supported effort in university education and research in extractive mineral technology. The importance of the minerals in the U.S. economy is underscored by the theme "if it can't be grown, it must be mined." Thus, the U.S. minerals industry is vital to the economic health and defense capability of the Nation and the educational and research capability of the extractive mineral programs in U.S. universities, supported by the Mineral Institutes, is essential to maintaining the flow of manpower and technology to the minerals industry. We believe that Congress was farsighted in reauthorizing the Mineral Institute program and we greatly appreciate the opportunity to continue to demonstrate its value to the Nation.

P.L. 100-483 authorized an appropriation of $400,000 to each participating State Mineral Institute for Allotment Grant purposes, a total of $15,000,000 for Research Grants and a maximum of $450,000 for administration of the Act. With the currently designated 32 Mineral Institutes, the total authorization would be $28,250,000. We believe that this amount could be used by the Mineral Institutes to the significant benefit of the Nation. However, recognizing the realities of budgetary constraints and the Federal deficit, we respectfully recommend an appropriation of $12,300,000 of which $8,000,000 would be for allotment grants to the institutes, $4,000,000 for research and $300,000 for administration. We also support separate appropriations of $2,500,000 for the Respirable Dust Center and $1,600,000 for the Marine Minerals Technology Center, both of which are administered by the U.S. Bureau of Mines under the Generic Mineral Technology Center program.

THE MINERAL INSTITUTE PROGRAM

The Mineral Institute program is operated through 32 State Mineral Institutes. The program has two distinct efforts — 1) institutional or allotment grant activity and 2) designated generic research activity.

Each Mineral Institute has programs of research and education in the minerals areas sustained by annual allotment grants, matched on the basis of 2:1 non-Federal to Federal dollars, for student scholarships and fellowships, pilot research project initiation, scientific equipment acquisition and continuing education. In 1989, allotment funds of $138,000 per Mineral Institute, were used to support 307 graduate students and for the provision of 128 undergraduate scholarships. Allotment funds also supported 247 research miniprojects. Two institutions offered a total of 24 continuing education courses. One institution supported 2 student field trips. Six technicians, two visiting professors, two visiting lecturers, and twenty-two postdoctoral students were also supported. Seven institutions used allotment funds to make purchases of major laboratory equipment and purchases of eight microcomputers and three major computer peripherals were made, all in support of advanced minerals education and research. Two institutions used funds for the publishing of newsletters and another updated its State mineral producers list and handbook and worked on an abandoned mined lands inventory. With the support of allotment funds 122 presentations were made at technical meetings and 106 papers were reported published in scientific and professional journals.

Research funds are used for support of Generic Mineral Technology Centers which are located at State Mineral Institutes. Each center has at least one lead university with additional institutes working as research affiliates. Thus the system is fully interactive and cooperative in organization and operation. The generic research areas, the generic center locations and the center affiliates are listed in the 1990 Report on the Mineral Institute Program which is being supplied to the Subcommittee along with this testimony.

ADVISORY COMMITTEE ACTIVITY

We are aware of the interest by Congress in careful oversight and continuing review of the Generic Center programs. We also believe in careful scrutiny of the use of public funds. The Advisory Committee to the Secretary of the Interior for the Mineral Institute Program did receive extensive documentation concerning each Generic Center in the fall of 1988 and reported that the committee believed that these Centers are efficient, effective, and relevant and are meeting the goals for which they were established. The Committee recommended their continuation at that time with all having equal priority. The Committee recognized the need for a more concentrated in-depth review of the Generic Centers, including visitations. The committee, therefore established a schedule for an intensive review of all the Generic Centers so that each will have been critically reviewed in time for the report to the Congress due not later than January 15, 1992. Such an in-depth review was conducted, in 1989, of the Mine Systems and Ground Control Generic Mineral Technology Center, which is administered by Virginia Polytechnic and State University at Blacksburg, Virginia. The results of that review are contained in the Advisory Committee's "1990 Update to the National Plan for Research in Mining and Mineral Resources," which is being supplied to the Subcommittee along with this testimony.

To continue its detailed review of the GMTC's the Advisory Committee at its October 22 and 23, 1989, meeting scheduled reviews of the Mineral Industry Waste Treatment and Recovery GMTC and the Pyrometallurgy GMTC for 1990 and appointed members to conduct that review.

In 1987-1988, the Advisory Committee also reviewed the status of all 32 Mineral Institutes by considering detailed reports provided in a uniform format prescribed by the Advisory Committee intended to elicit the manner in which each individual Mineral Institute was meeting the criteria established in the law and in regulations as amplified by guidelines adopted by the Committee at its September 30, 1987, meeting. In this review the Advisory Committee concluded that all 32 Mineral Institutes met the minimum standards but the Committee was concerned with four Institutes that had difficulty meeting the criteria. Therefore, the Committee in 1989 directed those four Mineral Institutes, to submit updated qualification statements. After reviewing these updated statements at its October 22-23 meeting, the Committee concluded that two of the institutes continue to meet the criteria, but that two others, because of faculty losses and minimal industrial support, might now be no longer qualified. The Committee recommended that the Bureau of Mines send letters to those two institutes asking each to show cause why it should not lose its eligibility as a Mineral Institute.

The purpose of providing this discussion of the Advisory Committee activities is to indicate to Congress that we believe that Committee is effectively discharging its statutory responsibility for oversight over the Mineral Institute program. This is partially in response to questions asked by the Senate Subcommittee last year, with respect to the role of the Advisory Committee in setting the direction and monitoring the quality of the Institute program.

APPROPRIATIONS REQUEST

In recent past years, we have requested increased appropriations for both the Allotment Grant and Research components of the program. Also, for the past nine years, no funds have been recommended by the Administration for the program. This year, the Administration has recommended $4,000,000 for continuation of the four original Generic Mineral Technology Centers and $250,000 for program administration. We support that recommendation but request that the budget for administration of the Mineral Institute Program be increased to $300,000. We further recommend that research funds also be appropriated for the Respirable Dust and Marine Minerals Technology Generic Center programs that have received line-item appropriations, rather than appropriations through the Mineral Institute budget process.

Furthermore, as the very highest priority, we urge that the Allotment Grant program be funded and at the level of $250,000 per institute. This would be an increase of $114,000 per Institute over FY 1990 funding but would, in fact, only restore the spending level that existed a decade ago. The impact of the erosion in spending power upon the program is clear when the cost of supporting a graduate student is considered. Using average higher education cost increase figures, it will require more than $1.8 for each 1981 dollar to support a graduate fellowship in 1991. Thus, the current level of allotment grant funding will support only about one-half as many students as were supported a decade ago. We believe that this is unfortunate and needs to be remedied, since the demand for trained professionals in the mineral engineering and science disciplines currently exceeds the supply of available graduates. It is our intent that the requested increase of $114,000 per institute would be directed principally toward increased student support. This is in keeping with President Bush's emphasis on education and is consistent with the purposes of the Mineral Institute Act and with industry's needs. It should be noted that the requested increase of the Allotment Grant budget to $250,000 per Mineral Institute would require matching funds of $500,000 per Institute, a very significant commitment on the part of each participating Institute.

In support of our request for an allotment grant appropriation of $250,000 per Mineral Institute, we have prepared a documentation of the achievements of each of the 32 Mineral Institutes during 1989. That report is submitted to the Subcommittee on Appropriations for Interior and Related Agencies as a supplement to this testimony. We believe that the Mineral Institutes do, indeed, perform an outstanding service and would hope that the Subcommittee would, after review of our report, agree with that assessment.

The Mineral Resources Committee of the National Association of Universities and Land-Grant Colleges and the National Association of Mineral Institute Directors would like to express their appreciation for the opportunity to testify before this Subcommittee.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR BUREAU OF MINES—MARINE MINERALS TECHNOLOGY CENTER

WITNESS

J. ROBERT WOOLSEY, CONTINENTAL SHELF DIVISION, UNIVERSITY OF MISSISSIPPI

Mr. ATKINS. Dr. Robert Woolsey from the Marine Minerals Technology Center? You're at the University of Mississippi.

I want you to know that Mr. Whitten contacted me. He wanted to make sure that I gave you a very warm welcome and let you know that he sends his regards and he's sorry that he can't be here today, and I'd better not be as tough on you as I was on previous witnesses. [Laughter.]

Mr. WOOLSEY. Yes. After watching Don here on the hot seat—I thought he did quite well.

Mr. ATKINS. I thought he did very well.

Mr. WOOLSEY. I think maybe we should have gotten Mr. Whitten to put in a few words for Don there. We certainly appreciate his——

Mr. ATKINS. I don't think Don needed any help. [Laughter.]

Mr. WOOLSEY. We're also part of that same program, and we certainly appreciate the opportunity to appear before you today. We certainly are grateful for the past support that's been given us.

The MMTC is a national program under the Department of the Interior and administered by the Bureau of Mines, as a functional part of this overall mineral institute program, as one of the generic centers. As such, however, we are one of the line items.

Our mission primarily involves technology transfer between academic institutions, government agencies, and industry. We're mainly involved with marine mineral resource exploration and development and conservation in the US EEZ. Our structure includes the continental shelf division, based at Mississippi, and the ocean basins division, based in Hawaii. But our projects extend throughout the exclusive economic zone of the U.S.

We're involved in projects such as sand resource delineation and study for shoreline stabilization, and projects involving these studies are in Hawaii and several Gulf Coast States: Texas, Louisiana, Mississippi. Also, placers involving both industrial minerals and precious metals in Alaska and Oregon, and phosphates, aggregate, and placers on the East Coast, particularly in the south East Coast. So, we do have a wide range of activity. We're even headed up your way in this next year to look at aggregate. We do have quite a wide involvement.

Basically, we have a cooperative approach in all of our programs with both the industrial and agency partners. We've got a pretty good track record. We've worked with West Gold in Alaska. We developed a robotic drill that has cut their drilling cost to one-fifth of the former cost. We've developed a specialized drill for Dupont. We're working on several drill sampling systems for the Bureau of Mines. We're going up to Alaska and drill through the ice here in a few weeks.

Mr. **Atkins**. That's the one in Cape Prince of Wales?

Mr. **Woolsey**. Cape Prince of Wales, yes.

Mr. **Atkins**. Tell me what you'll be doing there.

Mr. **Woolsey**. Off Cape Prince of Wales there's considerate sand or tin and also there are the rare earth metals, the rare earth oxides that are used in a lot of our high tech applications that we found in at least interesting quantities. We're trying to get up there before the ice breaks up in April and do some work.

We also have designed some specialty-type dredging systems that can work under the ice and through the ice, and we're presently working with a contractor in Mississippi for a real low-cost, dragline-type mining system, along those lines.

Basically, we're asking for an increase over our basic $1.2 million to $1.6 million, to support the design of an autonomous vehicle that can get out and cover the sea floor.

Mr. **Atkins**. And you're aware there's nothing presently in the President's budget——

Mr. **Woolsey**. Exactly. Exactly. We're always thankful for whatever we can get down in Mississippi.

Mr. **Atkins**. You do pretty well. We'll certainly consider this. We appreciate your good work and we're aware of the significant work you've done in the past. Thank you for your testimony.

Mr. **Woolsey**. Thank you very much, sir.

[The prepared statement of Robert Woolsey follows:]

TESTIMONY OF
THE MARINE MINERALS TECHNOLOGY CENTER

DR. J. ROBERT WOOLSEY
THE CONTINENTAL SHELF DIVISION
THE UNIVERSITY OF MISSISSIPPI
AND
DR. HARRY J. OLSON
THE OCEAN BASINS DIVISION
THE UNIVERSITY OF HAWAII

BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON INTERIOR

THE HONORABLE SIDNEY R. YATES, III, CHAIRMAN

MARCH 8, 1990

Introduction

This statement is respectfully submitted in support of the Marine Minerals Technology Center (MMTC), a generic center of the State Mining and Mineral Resources Research Institute Program. The primary purpose of MMTC funding is to encourage the development of U.S. mineral resources by providing for research and development within academic, government, and industrial communities. Requested funding for FY 1990-91 is $1.6 million, to be divided equally between the Continental Shelf Division (CSD) at the University of Mississippi and the Ocean Basins Division (OBD) at the University of Hawaii. An increase in funding from 1.2 million in FY 1989-90 is requested for the initial development of an Autonomous Underwater Vehicle for use in conducting mineral resource and other seafloor surveys.

Autonomous Underwater Vehicle

The two divisions of the MMTC are jointly initiating a program to develop an Autonomous Underwater Vehicle (AUV) for use in conducting mineral resource and other critical seafloor surveys. The U.S. Exclusive Economic Zone (EEZ) encompasses more territory than the continental U.S. and represents vast, essentially undeveloped mineral, fisheries, and aquaculture resources of potentially significant value. A general survey of this area using conventional methods would take approximately 500 ship-years to complete. An AUV approach, however, could significantly reduce costs and improve efficiency by simultaneously utilizing a number of these vehicles capable of operating for extended periods of time. The AUV's, deployed from a single vessel, would transmit data back to an existing NASA network, where they would be remotely controlled in a fashion similar to the planetary probes. The AUV's would perform such survey tasks as mineral resource identification and recovery, environmental assessment studies, measurement of features for ocean engineering projects, and emplacement of instruments to record various geotechnical and chemical dynamic events.

Funded Research Programs

Qualified investigators from various organizations and institutions submit research proposals on an annual basis to be reviewed and selected by the MMTC and its Research Advisory Council. Projects which develop exploration technologies receive highest priority; but mining, processing, and environmental projects are also considered on merit, particularly when supplemented by industry or government agency funding. The MMTC is presently funding 11 research projects and has submitted 16 proposals for review for FY 1990-91 funding.

Industry Affiliations

The MMTC maintains active ties with industry and focuses many of its operations on current and projected industrial needs. In these cooperative research programs, the MMTC generally contributes personnel and expertise in the development of new technology, and industry provides the majority of expenses. Resulting technology remains in the public domain, available to other researchers or to industries with similar needs. Several MMTC industry associations are discussed below.

In its first industry cooperative program, the MMTC developed a highly mobile reconnaissance drill for Western Gold Exploration and Mining Company. The Remote Placer Drill (RPD), which combines a vibralift drill design with a pneumatic rock drill, was designed to inexpensively sample the highly variable gold placer deposits offshore Nome, Alaska. With the encouraging initial test results of the RPD, WestGold sponsored the development of a more advanced model for production drilling. The hydraulic RPD II, which has also proven successful, has a deeper drilling capacity and is of a sturdier design than the prototype system. The MMTC plans further testing and modification of these drill systems and will continue to expand their applications to additional in-house and cooperative projects.

Also at the request of industry, the MMTC has designed a series of conceptual dredge systems capable of mining placer and/or gravel deposits in light ice and rough sea conditions. One continuous bucket dragline design incorporates the flexibility and efficiency of a continuous bucket line ladder dredge without the limitations of the ladder. Subsequent to a seismic and drill sampling survey for gravels in the Mississippi River, the MMTC plans to design and construct a prototype continuous bucket dragline dredge system in a cooperative venture with Miller Construction Company of Vicksburg, Mississippi. Although the prototype dredge will be designed for working deep river gravels, it could also be mounted on an ice-belted barge that could be maneuvered in light sea ice, making the system applicable in a variety of environments.

In a project with E.I. DuPont de Nemours & Company, Inc., MMTC geologists initially helped to identify and develop an exploration model for potential heavy mineral deposits along the coast of Senegal, West Africa. DuPont then requested further assistance in a drilling project in remote areas where conventional drilling was not feasible. The MMTC has designed and constructed a percussion-waterlift drill and support frame to take representative samples of dune sand, and an MMTC team will go to Senegal to aid in initial operations. DuPont is covering all expenses.

The MMTC is cooperating with Ocean Minerals Company and Ocean Mining Associates in the acquisition of original data and samples of deep seabed nodules for further analysis and research. In addition to their traditional use as an ore of certain strategic minerals, nodules have proven effective in absorbing sulfur and nitrogen compounds in coal-fired furnaces; relevant tests have been scheduled with power plants. Information developed in this project will be made available in the public domain.

Cooperative Research Programs

In its cooperative research programs, the MMTC supports and coordinates government agencies and academic institutions conducting similar research. These networking efforts promote technology transfer and help to minimize the unnecessary and often costly duplication of research efforts. A few examples of such programs are discussed below.

In a 1989 Minerals Management Service/Georgia Task Force project offshore Georgia, the MMTC conducted research in conjunction with Georgia State University and the Center for Applied Isotope Studies at the University of Georgia. This project, co-sponsored by the Georgia Geological Survey and the Minerals Management Service, had a two-fold objective: to run a series of high-resolution seismic profiles to provide a regional stratigraphic framework for phosphate-bearing deposits; and to conduct a series of site-specific studies to determine the presence of heavy minerals, phosphorite, sand, and gravel. In response to a continued commitment of Minerals Management Service funding, the MMTC plans to conduct a bulk sampling program in the summer of 1990. The RPD, modified for use as a mini-borehole miner, will be used in an attempt to recover one to two tons of phosphorite matrix material. If successful, the recovered bulk material will be delivered to the Bureau of Mines' Salt Lake City facility for processing studies.

The MMTC is working with the state of Hawaii in the development of sources, technology, and environmental mitigation for the replenishment of commercial beach areas within the state which require protection or enhancement. Terrestrial sand resources are becoming scarce, and sources of sand for this study are being sought in deep waters offshore.

MMTC personnel are presently working with the Minerals Management Service on the development of a program to monitor the environmental effects of deepsea mining using a continuous bucket line dredge system in Pacific seamount areas with the potential for cobalt crust development.

In an effort to delineate the placer potential near Cape Prince of Wales, Alaska, a cooperative project with the U.S. Bureau of Mines-Fairbanks will involve drilling a series of holes through the ice using a percussion-waterlift drill system which is a slightly modified version of one the MMTC previously constructed for DuPont. Depending upon the outcome of this investigation, a geophysical survey and a more extensive drilling program are expected to follow.

Also under consideration is a joint project investigating potential heavy mineral deposits offshore Oregon with the Minerals Management Service/Oregon Task Force, Oregon State University, and Portland State University. Considerable surficial studies have been conducted in this region, but due to the complexities of the environment, no drill sampling program has been attempted. The MMTC plans to conduct such a program in the fall of 1990 with the RPD system, which was developed for use under rough sea conditions.

Education, Training, and Technology Transfer

The MMTC supports a number of graduate students each year by supporting individual research projects and by providing full-time funding and tuition waivers. The center maintains reference centers in Mississippi and Hawaii, provides support funding for the International Marine Minerals Society and the Underwater Mining Institute, and presents technological developments at a number of conferences and meetings each year. The MMTC is also working with the U.S. Geological Survey in preparation of joint training sessions in shoreline erosion on the Mississippi coast and in marine mining development in the Pacific Ocean.

Conclusion

The Marine Minerals Technology Center has been extremely successful in generating the patronage and interest of a variety of industry groups, and relationships with academic institutions and government agencies indicate their need for cooperative programs as well. The American Mining Congress has expressed its support of legislation for the development of hard minerals in the EEZ, and an appropriation for the MMTC will continue to promote this avenue for efficient and progressive applied research.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/BUREAU OF MINES—HELIUM PRIVATIZATION

WITNESSES

CARL JOHNSON, CHAIRMAN, HELIUM ADVISORY COUNCIL

ARTHUR FRANCIS, SPECIAL CONSULTANT ON HELIUM, UNION CARBIDE

Mr. ATKINS. Carl Johnson from the Compressed Gas Association?

Mr. JOHNSON. Mr. Chairman, my name is Carl Johnson. I'm chairman of the Helium Advisory Council which consists of 10 companies engaged in extraction of crude helium from natural gas and its refinement into pure helium. We thank you for inviting us here today.

I have a written statement here, but I'm not sure that reading it verbatim is what you really want. What I'd like to do is to just talk a little bit about some of the points in here.

Currently, there is a great need to modify the Helium Act of 1960. It hasn't been worked on for probably 30 years, and we believe that it's time that something be done to change the situation.

There are some statistics that I have with the statement that back up some of the things that I'm talking about. But, basically, in 1958 helium sales were 331 million cubic feet, which was entirely supplied from the Bureau of Mines. Thirty years later, in 1988, helium sales had grown to 2,420 million cubic feet, of which the Bureau of Mines sold only 318 million cubic feet. The private sector that year supplied 102 million cubic feet of helium, or nearly 87 percent of the total.

It's the opinion of the Helium Advisory Council that the Government should phase out of its helium supply operations and that the Government should conserve the helium stored in the cliffside reserve reservoir for future decades when helium is likely to be even more scarce.

Helium sales are increasing at a phenomenal rate, a 10 percent compound annual rate of increase. This rate is based on new technologies that are helium-dependent. If the growth rate continues, the United States industry will be called upon to supply some 47 billion cubic feet of helium during the nineties and satisfy a demand of 7.5 billion cubic feet per year by the year 2000. This would triple present capacity.

Mr. ATKINS. Now tell me, of that amount of helium, 7.5 billion cubic feet, how much of that would be for domestic use?

Mr. JOHNSON. I'm not sure I can answer that question, although I would say that helium has been growing outside the United States at a rate equal to what is in the United States. I would guess that about—and I have an expert here who might be able to help me, Art Francis.

Mr. FRANCIS. Most likely about two-thirds of that would be domestic.

Mr. JOHNSON. The reason we're talking with you certainly is that the Bureau of Mines has a proposal before Congress, embodied in H.R. 2541, but in the Bureau of Mines budget it contemplates phasing into this. We would like you to have the—or permit the Bureau of Mines to begin making the needed changes that they have proposed. These changes I think will clarify the investment decisions of private companies to get into helium refining and purification.

Mr. ATKINS. What will the cost be of implementing that legislation?

Mr. JOHNSON. Art, do you know of a cost for implementing that legislation?

Mr. FRANCIS. The second Campbell report spoke to the cost to Federal agency users. I don't know that anybody has studied what the cost would be to the Bureau of Mines' helium operation itself.

Mr. JOHNSON. The cost to the Federal agency users was in the thousands of dollars. It's not a significant amount.

Mr. ATKINS. But the real concern of this committee is the cost to the Bureau of Mines.

Mr. JOHNSON. Yes.

Mr. ATKINS. If you could submit for the record your cost estimates on that for us——

Mr. JOHNSON. I'd be glad to do that.

[Material was not supplied to the subcommittee at the time of printing.]

Mr. ATKINS. That legislation was filed last year before Congressman Rahall's subcommittee. This committee is in somewhat of a difficult position in dealing with legislation where something is presently pending before an authorizing committee, being in a situation where we actually appropriate money for something that isn't presently authorized.

We're certainly aware of the problems, and I think you're correct in pointing out the difficulty in the private sector of the uncertainty of Federal intentions. Helium was not one of President Reagan's favorite substances, I guess. That certainly led to considerable instability in terms of private sector investments.

Mr. JOHNSON. One of the problems with helium is that it is such a small part of the budget, it's almost invisible. Yet, the United States is sort of a Saudi Arabia of helium. We're wasting this helium——

Mr. ATKINS. I never quite thought of this country in that way. [Laughter.]

Mr. JOHNSON. We're wasting a lot of it by not reclaiming it from the natural gas that's being produced. That's really the problem, and that's gone forever.

Mr. ATKINS. I appreciate your efforts. I'm sure you're aware that the sort of helium problems and the helium debate have been sort of the compressed gas of this committee. [Laughter.]

Thank you very much. We will be looking into that this year, and I hope we're able to coordinate something with the authorizing committees.

Mr. JOHNSON. I will look into the cost estimates for implementing that and get that back to you.

Mr. ATKINS. I'd appreciate it if you'd file that for the record.

Mr. JOHNSON. Yes, sir.

[The prepared statement of Carl Johnson follows:]

TESTIMONY OF THE HELIUM ADVISORY COUNCIL
BEFORE THE
HOUSE APPROPRIATIONS COMMITTEE
SUBCOMMITTEE ON INTERIOR

March 8, 1990

Mr. Chairman, my name is Carl Johnson. I am Chairman of the Helium Advisory Council (HAC), which consists of some ten companies engaged in the extraction of crude helium from natural gas and its refinement into pure helium. Thank you for inviting us to testify here today.

If I might offer an analogy, there are two schools of thought regarding machinery. One of these admonishes that if it "ain't broke, don't fix it." The other advises that periodic maintenance can prevent a breakdown. The Helium act of 1960 has not been amended since it was enacted thirty years ago. In those thirty years, the Bureau of Mines (BOM) helium activity has made little adjustment to its policies despite tremendous change in helium supply and demand. We believe a periodic maintenance of federal helium policy is needed now. My statement will cite some startling statistics which have been derived from Bureau of Mines data, principally the Bureau of Mines Annual Report to Congress, Fiscal Years 1960 - 1989, and the Bureau of Mines Information pamphlet entitled Helium Resources of the U.S..

In 1958 total helium sales were 331 million cubic feet, which were entirely supplied from the BOM helium facilities. By 1988 sales had grown to 2420 million cubic feet of helium of which BOM sold only 318 million. That year the private sector supplied 2102 million cubic feet of helium, or nearly 87 percent of the total.

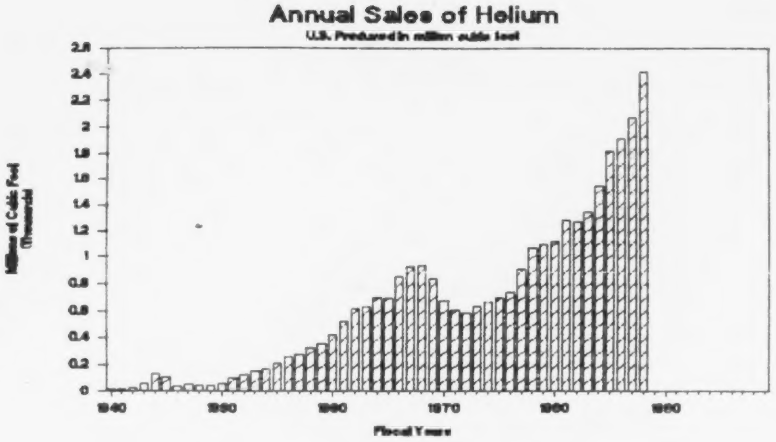
It is the opinion of the Helium Advisory Council that: (1) the government should phase out its supply operations to federal users of helium over the next few years as proposed by the BOM, and (2) the government should conserve helium stored in the Cliffside Reservoir for future decades when helium is likely to be more scarce.

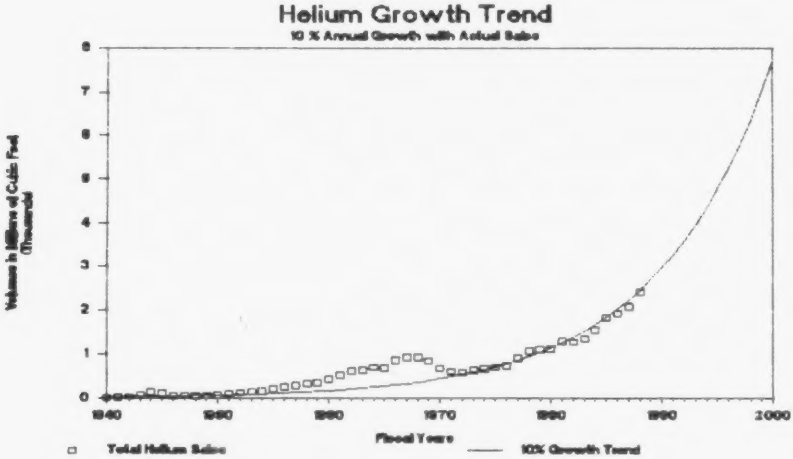
In recent years helium sales have been growing at a ten percent compound annual rate of increase. This growth rate is based in part on use of new helium-dependent technology. If this growth rate continues, the United States industry will be called upon to supply some 47 billion cubic feet of helium during the 1990s and will be expected to satisfy a demand of 7.5 billion cubic feet per year by the year 2000. This would approximately triple present capacity.

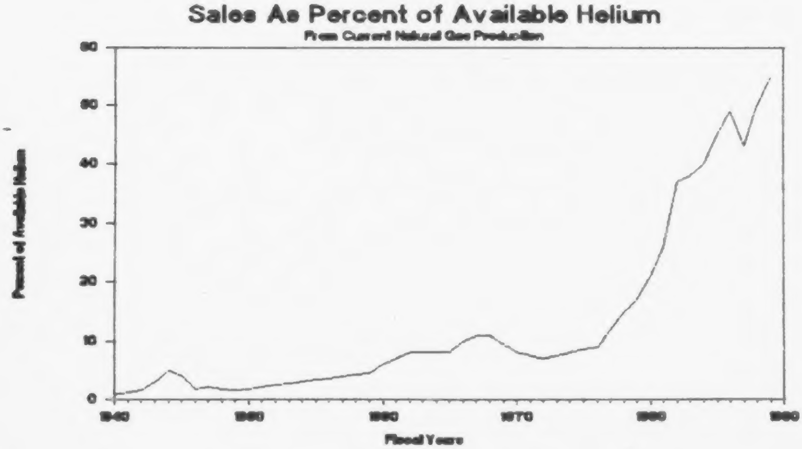
Prior to 1977, helium sales had been less than eleven percent of the amount available in helium-bearing natural gas that is produced for fuel use. Since 1977 helium sales have increased while production of helium-bearing natural gas has declined, so that helium sales in 1989 exceeded half of all the helium potentially available from current gas production. The primary task of the helium industry should be to achieve the fullest practical utilization of all helium sources. Significant investments by private companies will be required in order to build the needed capacity to meet these growing demands and continue to improve helium conservation. Doubts concerning the intentions of the federal government inhibit these investment decisions.

The Administration, particularly the director of the Bureau of Mines, has recognized the need for change and has made recommendations to Congress which have been introduced as HR 2541. Mr. Chairman, the Helium Advisory Council urges the Committee to allow the Bureau to initiate the needed changes proposed. These changes will clarify the investment options for helium suppliers, resulting in the capacity needed to effectively employ this valuable and depletable natural resource - - helium - -, for the benefit of society.

The position statement published by the HAC in November 1988 remains equally valid today. It has previously been supplied to the committee. An additional copy is appended to my statement. Thank you.


Annual Sales of Helium
U.S. Produced in million cubic feet
Millions of Cubic Feet (Thousands)
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1940
1950
1960
1970
1980
1990
Fiscal Years


Helium Growth Trend
10 % Annual Growth with Actual Sales
Volumes in Millions of Cubic Feet (Thousands)
8
7
6
5
4
3
2
1
0
1940
1950
1960
1970
1980
1990
2000
Fiscal Years
Total Helium Sales
10% Growth Trend


Sales As Percent of Available Helium
From Current Natural Gas Production
Percent of Available Helium
60
50
40
30
20
10
0
1940
1950
1960
1970
1980
1990
Fiscal Years

COMPRESSED GAS ASSOCIATION, INC.
1235 JEFFERSON DAVIS HIGHWAY ▪ ARLINGTON, VA. 22202 ▪ (703) 979-0900

November 21, 1988

HELIUM ADVISORY COUNCIL

POSITION STATEMENT

1. Optimum use of helium for the benefit of society requires continued participation of both government and private industry. Efficient routine supply to users should be the primary role of industry, while assurance of continued availability in an emergency should be the primary role of government.

2. Government owned crude helium should be provided to industry as required to satisfy emergency needs. The government's price of crude helium in an emergency situation should be high enough to provide industry with an incentive to extract helium from current natural gas production and to develop new helium sources while low enough to provide an economic reserve of crude helium. The Department of the Interior should develop a crude helium pricing mechanism which will generate prices consistent with these objectives.

3. The Bureau of Mines pipeline is a key component of the operations of the helium producer/marketers and is an essential part of the helium storage system. The government should ensure nondiscriminatory and equal access to the system.

4. The Bureau of Mines operational plans should hold in reserve a significant portion of its plant and transport equipment capacity to meet peak requirements, interruptions in normal supply sources, and other short term emergencies. Government pricing for refined helium and related services should be adjusted at least annually by an appropriate mechanism which is able to approximate free market value.

5. The Bureau of Mines should continue to monitor helium sources and continue as a "clearing house" of information.

6. The requirement that federal agencies purchase refined helium from the Secretary of Interior should be discontinued. After an appropriate transition period, private industry will be fully capable of satisfying all federal agency needs.

COMPRESSED GAS ASSOCIATION, INC.
1235 JEFFERSON DAVIS HIGHWAY • ARLINGTON, VA. 22202 • (703) 979-0900
HELIUM ADVISORY COUNCIL

POSITION RESPECTING PROPOSED AMENDMENTS TO THE HELIUM ACT

Introduction: The Helium Advisory Council ("HAC") is a national organization comprised of many of the leading companies engaged in the helium business, including the production, extraction, refining, marketing and distribution sectors of the industry. HAC operates as a sub-group of the Compressed Gas Association (and includes some members and certain non-members of the Association). Created to serve as a forum for industry views, HAC has worked to develop a constructive response to pending U.S. Department of the Interior ("Interior") proposals to privatize aspects of the helium operations administered by Interior's Bureau of Mines ("Bureau").

HAC believes that certain of the Bureau's helium assets can be sold, but that continued participation of both Government and industry is necessary to ensure optimum use, and the conservation, of a valuable, scarce resource. In particular, HAC urges that industry be allowed to assume the primary role of providing routine supply of helium to all users, while the Government undertakes to assure continued supplies of crude helium during emergency circumstances.

Toward that end, HAC supports legislation to: (a) remove the Bureau's monopoly over supply to Federal agencies, thereby allowing industry to compete for that substantial market, (b) define circumstances, and a pricing mechanism, under which Bureau-owned crude helium will be provided to industry to satisfy emergency needs, and (c) ensure nondiscriminatory and equal access to the Bureau's pipeline and storage facilities.

HELIUM IS UNIQUE, ESSENTIAL AND SCARCE

Helium has unique properties of inertness, lightness, and low-temperature fluidity that make it useful to science and industry. Today's major helium applications include: (1) cryogenics, (2) welding, (3) pressurizing and purging, (4) medical/clinical (including medical magnetic resonance imaging), (5) controlled atmospheres, (6) lifting gas, (7) leak detection, (8) breathing mixtures, (9) chromatography, and (10) as a heat transfer agent. For years, helium has been an essential strategic requirement for various defense (DOD), space (NASA) and nuclear energy (DOE) programs. According to J.R. Campbell & Associates, worldwide helium demand is expected to more than double by the year 2000. See, generally, Helium Program Study, J.R. Campbell & Associates, Inc. (1988), at Appendix A.

Helium is found in air at only 5 parts per million, and its recovery is estimated to cost almost 800 times as much, in energy units, as it does to separate helium from helium-rich natural gas (containing greater than 0.3% helium). Almost 96% of the world's known helium-rich natural gas is located in the United States. However, these helium-rich gas reserves are being depleted at a rapid rate by the use of such natural gas for fuel, and are expected to be exhausted within 20 to 30 years.

CURRENT FEDERAL POLICIES MUST BE RE-EXAMINED

The Helium Act Amendments of 1960 (Pub. L. No. 86-777), 50 U.S.C. §§ 167 et seq. ("Act"), established a national helium conservation program. At the time, the Bureau held a virtual monopoly in helium extraction and marketing. One purpose of the Act, however, was "to foster and encourage individual enterprise in the development and distribution" of helium.

Under authority of the Act, the Bureau in 1961 entered into 22-year purchase contracts with four private companies to extract crude helium (50% or greater helium, the remainder nitrogen) from natural gas and deliver it for storage (up to 62.5 Bcf) in the Bureau's Cliffside field near Amarillo, Texas. The program included construction of five extraction plants by the four companies, as well as construction of a crude helium pipeline connecting the plants to the Cliffside field. Direct supply of Federal agencies, then amounting to 70% of total use, was reserved to the Bureau, and the entire program was to be self-liquidating with revenues from helium sales expected to cover repayments to the Treasury of all borrowings, interest, and other costs incurred. This never happened.

Largely as a result of lower-than-expected Bureau sales (due both to decreased Federal agency demand, and to development of industrial capability to supply the growing private sector demand), Interior terminated the crude helium purchase contracts in 1973, effectively ending the helium conservation program. Today, there are approximately 35 Bcf of Bureau-owned crude helium in storage at Cliffside. The initial debt repayment date of 1985 has passed, with the Bureau now owing the Treasury about $1 billion. Private industry – nonexistent in 1960 – now supplies almost 75% of U.S. domestic helium requirements.

FEDERAL POLICIES SHOULD ENCOURAGE OPTIMUM USE

Private industry has now assumed the primary role in the production and supply of helium and, following an appropriate transition period, is fully capable of supplying the needs of all current users, including Federal agencies. Federal policy should allow this to occur, and should encourage it for purposes of optimizing use and conservation. Due to contractual commitments, industry must continue to produce natural gas from its helium-rich fields, so opening of the Federal agency market will maximize usage of the helium contained in such gases (while allowing the Bureau to conserve its own stored capacity). Moreover, supply of Federal agencies by private industry will allow certain of the Bureau's assets to be sold, in partial repayment of the debt.

The Bureau's Cliffside crude helium storage field, and its crude helium pipeline, are essential to the assurance of guaranteed helium supply. Federal policy should continue to provide for access to the pipeline and maintenance of a strategic storage system, and should authorize the Bureau to make a portion of that supply available to industry under emergency circumstances.

A statement of HAC's positions on these issues is attached.

COMPRESSED GAS ASSOCIATION, INC.
1235 JEFFERSON DAVIS HIGHWAY ■ ARLINGTON, VA. 22202 ■ (703) 979-0900

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- Liquid Carbonic Industries Corporation
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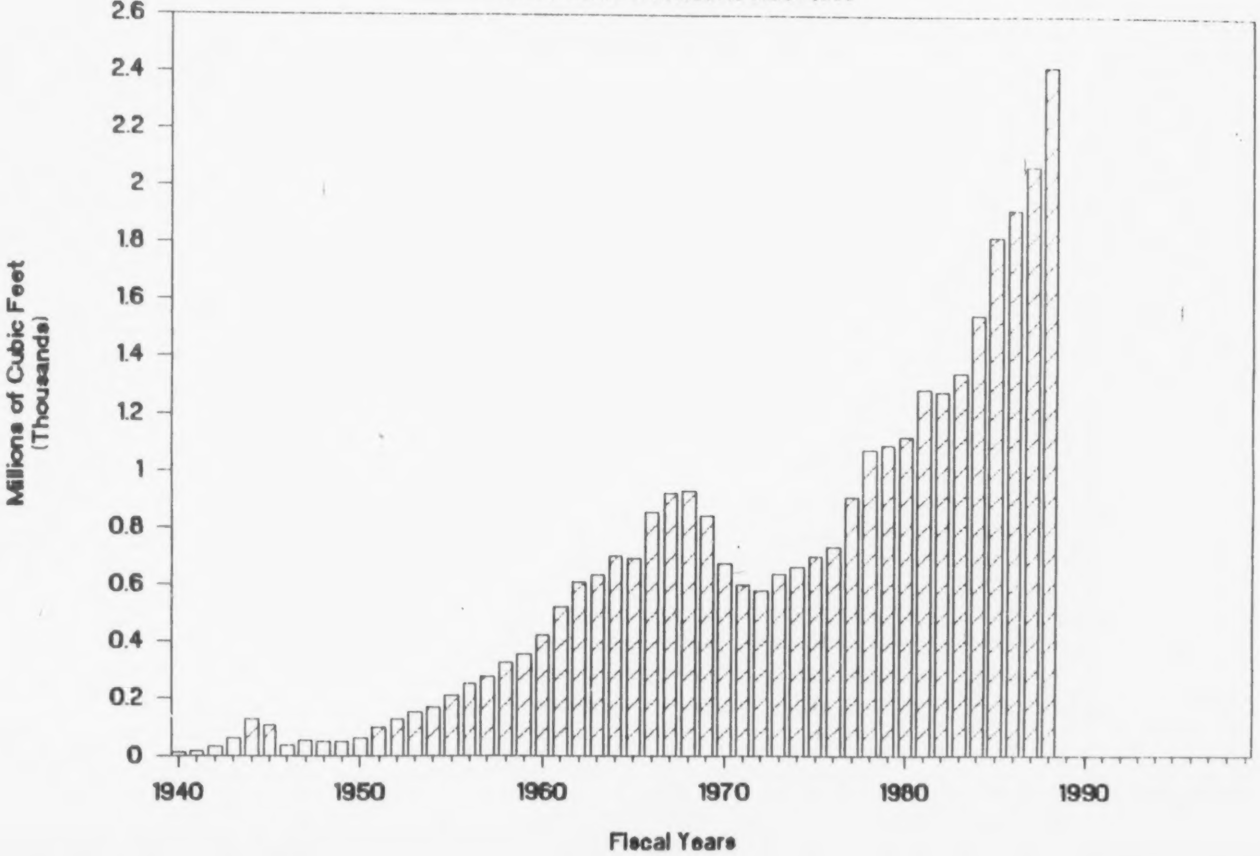
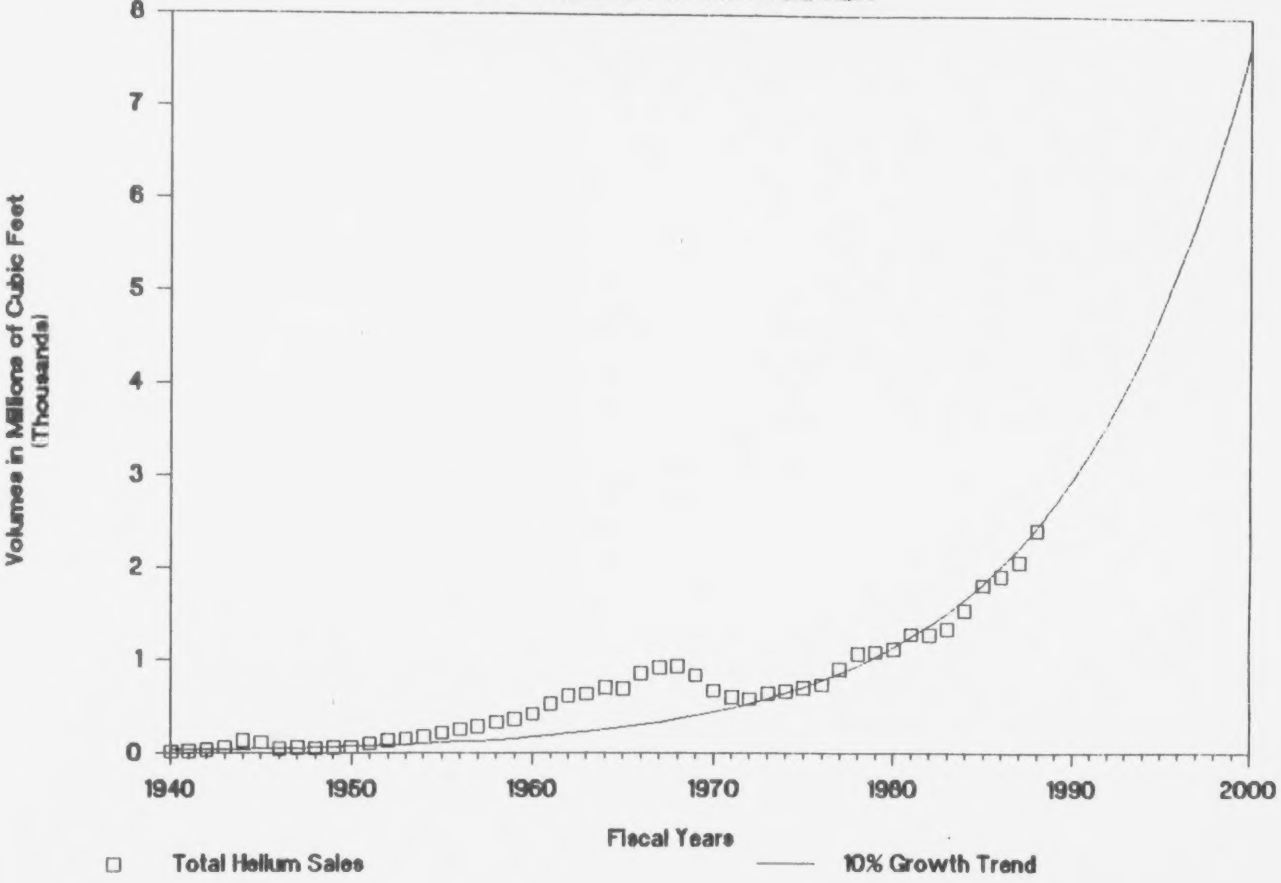


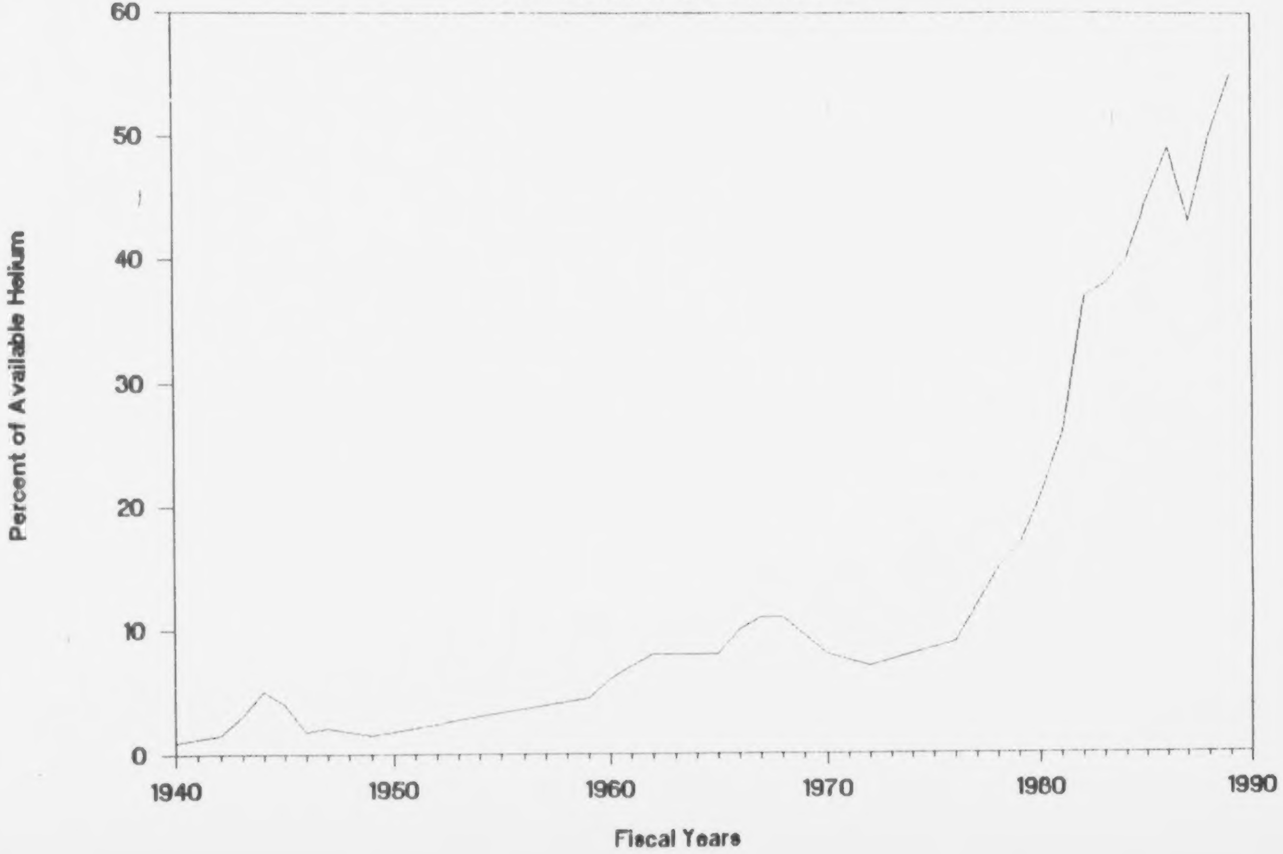
Annual Sales of Helium

U.S. Produced in million cubic feet

Helium Growth Trend

10 % Annual Growth with Actual Sales





Sales As Percent of Available Helium

From Current Natural Gas Production

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/OFFICE OF SURFACE MINING—ABANDONED MINE LANDS

WITNESS

JAMES GRACE, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Mr. ATKINS. The Pennsylvania Department of Environmental Resources, James Grace?

Mr. GRACE. Thank you, Mr. Chairman.

Mr. ATKINS. You have five minutes.

Mr. GRACE. I would like—in my office of resources management within DER, I have the responsibility of managing the natural resources programs in Pennsylvania. I'd like to comment on two of those which involve your committee. One is the Title IV program of the Surface Mining Control and Reclamation Act and the other is the land and water conservation fund.

The Title IV program in Pennsylvania is the cornerstone to our mine reclamation program, and we certainly have an awesome problem that pertains to mine reclamation. We have about $15 billion worth of problems that involve ongoing mine fires, mine subsidence of towns, hospitals, schools, numerous open pits, some of which are half a mile or a mile long and sometimes three or four hundred feet deep; steep high walls; acid mine-polluted water. It's a legacy which was contributed to by the coal mining in the early part of this century, which essentially fueled the industrial revolution.

With that type of problem, we are extremely concerned with the 1991 appropriation levels put forth by the Administration for this program. The $117 million proposed is much less than even the minimal $150 million of last year, and we hope that an appropriation closer to $200 million, which is comparable to what the industry and the coal industry is putting into the program, is contributing, and it's becoming increasingly difficult for us to stimulate the contributions by the coal mining industry when much of that money each year does not go into active mine reclamation. So we would hope that would be changed.

Secondly, we would hope that the program which is due to end in 1992 could be reauthorized. In Pennsylvania by that time, we will have received about $400 million. We still have about a $1.7 billion problem left. Nationally, we figure only about half of the $5.8 billion problem will be cured. So we think there is sufficient need to keep the program going. So we hope it will be reauthorized.

I guess the last point is—it pertains to the Title IV program. We would hope that the allocation, particularly the Secretary's discretionary share, should be distributed in terms of need and severity of the problem. In the past most of that money has gone toward priority 1 and 2, those problems which threaten human health and safety, and we hope that could continue in the future as well.

As it relates to the land and water conservation fund, we would applaud the President's increase in his budget for the national system of parks, but we are very disappointed that no money was appropriated for the State or local portion of that fund. In our mind, our national system of parks includes more than the national park system; it includes both the State, county, and local parks as well as the national parks. Clearly, about 90 percent of all the users of recreational lands are using local and State parks. Clearly, State parks have about three times as many users as the Federal parks.

Realizing we're in a time of limited budget resources, we think it makes even more sense to contribute money into the State and local portion of this fund because, one, it provides recreation close to the people where they need it; two, the money is essentially doubled, because with a match from the local or State government, we're getting more recreational land for the dollar. I know in Pennsylvania we have $15 to $20 million a year in requests for what now amounts to only about $300 or $400 thousand in monies available for that.

Mr. ATKINS. Let me ask you, on title IV, the Secretary's discretionary share, last year we changed that from the so-called inventory of problems, which there was some significant dispute as to how accurate that inventory was in terms of its reflection of where the problems were——

Mr. GRACE. That's correct.

Mr. ATKINS [continuing]. To historical coal production, which is I believe was what Pennsylvania was seeking.

Mr. GRACE. We have always gone on line as saying, if you could get an accurate inventory——

Mr. ATKINS. Right.

Mr. GRACE [continuing]. That we'd go with the inventory, but we agree there's been so many problems with getting accurate, that we're happy with the historic—at least it's consistent and stable and you know what we're dealing with.

Mr. ATKINS. The change in that formula, have you found that that's affected you to date?

Mr. GRACE. Well, basically, since we have such an astronomical amount of the problems, and I think Pennsylvania probably has close to a third of all the problems in the country, changing that has actually reduced our share somewhat, but I think the threat was to reduce our share a lot more if all the things that were going along with the inventory would take place. So, we're stable with the historical part.

Mr. ATKINS. What share of that money, the discretionary money, goes to Pennsylvania?

Mr. GRACE. In total, I don't—I would roughly think about 25 percent.

Mr. ATKINS. About a quarter?

Mr. GRACE. Yes.

Mr. ATKINS. Thank you very much.

Mr. GRACE. Thank you, sir.

Mr. ATKINS. Thank you for your good work. You do not have an easy job there. It's never pleasant to clean up a mess that was created by somebody else.

[The prepared statement of James Grace follows:]

TESTIMONY OF

JAMES R. GRACE, DEPUTY SECRETARY

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

before the

HOUSE APPROPRIATIONS COMMITTEE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

March 8, 1990

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify before you today. I am James R. Grace, Deputy Secretary of the Pennsylvania Department of Environmental Resources. My Office of Resources Management administers the state's abandoned mine reclamation program and the Land and Water Conservation Fund. I would like to address the funding of both programs beginning with Title IV of the Surface Mining Control and Reclamation Act of 1977.

With the assistance of the Title IV program, Pennsylvania alone has reclaimed 12,400 acres at nearly 800 abandoned coal mining sites. If left unabated, these abandoned mine problems would have resulted in serious injury or death for those in the vicinity. However, addressing all of the abandoned mine problems in the Commonwealth is estimated to be at least a $15 billion undertaking. Any threat to the effectiveness of the federal reclamation program is a serious threat to the health and safety of our citizens. We, in Pennsylvania, are concerned that:

1. Cuts to the Title IV reclamation program appropriation will slow down the pace of reclamation and should be rejected by Congress as it was rejected last year;

2. The need for federal reclamation funds will extend far beyond August 3, 1992, the slated expiration of the Office of Surface Mining's (OSM) authority to collect and distribute funds;

3. The Secretary's discretionary share of the fund be allocated only to correct health and safety problems based on need, as the law provides, with at least 40 percent of this "discretionary share" devoted to such problems.

Let me address each of these concerns in more detail.

FY'91 Appropriation Levels

Based on the size of our remaining reclamation problem, I think it is understandable that we are very concerned about unrealistically low levels of appropriations for Title IV grants to states. The President's current budget request, as in prior years, seeks to slash state funding to $117 million from $150 million for FY'90, which was already at the very minimum level.

OSM justifies this unrealistically low level of funding by telling Congress that states have $439 million for Title IV work from an unobligated balance on October 1, 1989, of $257 million, the 1990 appropriation of $150 million and deobligated funds totaling $32 million. This is labeled an 8 percent increase in unobligated funds since October 1, 1988. However, former Director Gentile informed Congress that states had $458.2 million in unobligated funds as of October 1, 1988. We counter OSM's assertions with the following:

- **Deobligated funds accrue from diligent grants management and the pursuit of the most economic and efficient reclamation possible by the states.** Deobligated funds are made available for future reclamation projects. They are a program plus, not a negative. Approval of grant amendments to use the deobligated balance have been delayed by OSM for up to six months or longer and therefore are not readily available to the states as OSM asserts.

- **OSM incorrectly counts appropriated but ungranted funds as "unobligated funds."** OSM shows that the $150 million 1990 appropriation was available as of October 1, 1989. However, many states will not receive grant approval until late within the fiscal year. Pennsylvania was not-notified of its 1989 grant award until after the end of the fiscal year despite a grant request in March. Our 1989 grant award of $25.5 million should not have been considered as unobligated funds for FY'89, but by OSM's accounting it was.

- **States have continued to obligate funds since October 1, 1989.** Pennsylvania obligated $26 million from October through February of this fiscal year. Assuming that all states were obligating at historical rates, as noted within the last five years, we can assume an additional $75 million in obligated funds.

OSM also accounts for Administrative Grants within the unobligated balance. Surely funds set aside to pay staff and program expenses cannot, and should not, be accounted for as unobligated funds. Thus, the so-called million "unobligated balance" is only $160 million not $439 million as OSM has claimed. But that $160 million is 100 percent dedicated, if not obligated, to site specific reclamation projects where property owner agreements are signed or are being sought. Not one dollar of that amount is available to support new reclamation efforts.

We urge this subcommittee to include much higher levels of appropriations. Ideally, the total for Title IV should approach the amount of annual revenue received from coal operators, $240 million, rather than the $149.9 million total requested by the Administration. Reduced appropriations are undermining the intent of the law. The funds are being collected from today's active coal mining industry to ensure reclamation of problems created prior to enactment. The coal industry and affected citizens expect that adequate funding will be made available to reclaim sites as quickly as possible. They certainly don't expect to have this money sit in a fund unspent in order for the federal government to balance its budget.

Each year, more money is collected from the coal industry than is appropriated by Congress. In FY'90, $40 to $50 million more dollars will be collected from industry than was appropriated. For FY'91 the figure could be greater than $100 million. The unappropriated balance in this dedicated fund is approaching $500 million. So, in effect, the coal industry and its customers are being made to pay a disproportionate amount to reduce the budget deficit. If the Title IV reclamation program had been funded at levels equal to revenue, Pennsylvania could have received an additional $100 million, based on the allocation methods OSM used each year.

Continuation of the Program

The authority of OSM to collect and distribute funds under the Title IV program will expire in 1992. Yet significant numbers of high priority reclamation problems will remain unabated after that date, not only in Pennsylvania but in the Appalachian and midwestern coal-producing states. For the most part, these states fueled the industrial expansion of this nation in the last century and the early part of this century. Depending on future funding levels and discovery of new problems, many other states may also face the lack of federal funds to address health and safety problems. The nationwide reclamation inventory stands at $5.8 billion in reclamation costs. Only half of that inventory is expected to be addressed through the current life of the program. By 1992, Pennsylvania will have received about $400 million to address the $1.7 billion worth of projects on our inventory. Reclamation of threatening sites will continue to be a nationwide problem after 1992, requiring continuing federal action just as it required federal action in 1977. Continuation of this program is critical to the safety and health of our citizens.

Allocation Based on Need

Half of the Title IV collections are returned to the states. The remainder falls into what is called the Secretary's "discretionary share." So much of this is earmarked for "special projects," such as the RAMP program and federal administrative costs, that only a very small amount can be given back to states for correcting major health and safety problems. Back in 1977, it was the clear intent of Congress that the limited amount of money in the Secretary's discretionary share be used to address health and safety (Priority 1 and 2) sites first. In FY'90, much of the appropriation will be allotted to the states for reclamation projects totally unrelated to health and safety problems created by coal mining. That's why Pennsylvania fought diligently for and was successful in getting a provision added to H.R. 2095 which requires that 40 percent of the Secretary's share be earmarked to go back to states for reclaiming high priority abandoned mine sites.

Pennsylvania believes that the true measure of the nationwide need for reclamation of abandoned coal mines is a valid, standardized inventory of health and safety related problem areas. We have maintained that the allocation of the discretionary share must be tied to such a meaningful inventory. To be meaningful, the inventory must be used consistently and kept open for revisions as new problems are discovered. However, OSM's handling of the inventory has been fraught with inconsistencies, changing guidelines, and evolving rules. OSM's decision about closing the inventory for allocation purposes has also effectively destroyed its future usefulness. We have reluctantly come to the conclusion that the Secretary's share should be allocated, as it was in FY'90, on the basis of historic production. This may not be the best measure of need, but it is a reasonable indicator and has the clear advantage over the inventory method of being an objective measure.

We in Pennsylvania strongly support the reauthorization of the Title IV program:

- as a sorely needed financial assistance program to states for coal mine reclamation;
- as a program that is effective and expeditious in abating the abandoned mine threat, which can only be accomplished if the full resources of revenues collected are devoted to the task; and
- as a program that spends money according to the intent of Congress, which can only be accomplished if health and safety problems are addressed first and states can count on a predictable level of allocation.

Land and Water Conservation Fund

Let me now turn to the Land and Water Conservation Fund. This year we were pleased to see the President's FY'91 budget proposal identify the protection of valuable public lands as a problem of utmost national concern. President Bush specifically called for America's system of parks, wildlife refuges, forests, and other public lands to be expanded and passed on in better condition than they are now.

While we share the President's goals, we feel compelled to note that America's system of parks stretches beyond the boundaries of those lands administered by the National Park Service. America's system of parks reaches into every state and every corner of this country. It is composed of state, county and local parks as well as green space in cities and along river corridors. In fact:

- State and local parks together provide over 90 percent of the public recreation visitation in the nation;
- 3 out of 4 American adults visit local parks annually;
- State park visitation throughout the 50 states in 1988 was nearly triple that of visitation in national parks - state parks served over 700 million visitors while recreation visits in the same year in national parks totaled only 283 million.

The LWCF has served as the catalyst for acquiring national park lands, helping our state parks grow, and providing much needed green space in our urban areas. As we celebrate the 25th anniversary of this valuable state/federal partnership, we are deeply troubled that the Administration has chosen to undercut the very basis of this partnership by eliminating funding for state and local projects.

The President has spoken of the need to provide recreational opportunities for all Americans close to home. The state/local side of the LWCF meets this need most effectively by providing local recreational programs which help to fight drug abuse, provide after school opportunities for disadvantaged youths, and enhance the overall quality of life in our cities. The Administration proposes to eliminate funding for state/local projects due to fiscal constraints imposed by the budget deficit. This makes no sense to us - particularly since it is the state/local side of the LWCF which does the most to assure that facilities are located close to home where they are most critically needed. It is the state/local side of the program which guarantees that the Congress will realize at least double the return on each dollar invested. It is also the state/local side of the program which creates no future demands on the federal budget for facilities development, operational costs, and increased maintenance expenses. We would argue that in times of tight funds, it is precisely the state/local side of the LWCF that should be funded to create the greatest benefit for America's system of park and recreation areas.

In Pennsylvania, the demand for LWCF funding far exceeds the available dollars. Each year, we receive from $15 to $20 million in local recreation program requests. If every dollar of LWCF funds that we received last year were to be used to address only these local needs, it would cover a mere 2 percent of the proposed projects. Without adequate funding, opportunities to acquire valuable special resource areas and recreation lands may be lost forever.

The yearly struggle between the state and federal levels of government seeking funding through the LWCF program shatters the partnership that was the cornerstone of the most effective federal recreation program ever. Based on the critical need for additional recreational opportunities across the country, especially in our cities, and the significant contribution of the state/local side of the program, we propose funding the state side at a level of $150 million in FY'91.

Looking beyond to the future, now is the time to seek a more stable, long-term source of funding to expand and improve our public lands as envisioned by President Bush. Governor Casey in testimony to the National Parks and Public Lands Subcommittee the past two years has strongly supported legislation to create an American Heritage Trust. The American Heritage Trust provides the vehicle for providing this permanent source of monies. This legislation will also provide the basis for renewing and strengthening this valuable federal/state partnership created by the LWCF over 25 years ago.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—TRIBAL AUDITS PROGRAM

WITNESS

DAVID C. HARRISON, COUNCIL OF ENERGY RESOURCE TRIBES

Mr. ATKINS. The Council of Energy Resource Tribes, David Harrison?

Go ahead.

Mr. HARRISON. Thank you very much, sir.

First, I would like to express, on behalf of the nearly four dozen tribes that make up the Council of Energy Resource Tribes, our sincere appreciation to this committee and the staff over the years that have helped us try to work through and work with some of the problems that we continue to experience with the Minerals Management Service.

In fact, notwithstanding the interest of some of the authorizing and oversight committees, we would like just to take this opportunity to let you know that we know that, if it had not been for your efforts, we still would have a set of product valuation regulations for oil and gas that would be tied up in court today; we still would be in court trying to undo the agency's efforts to modify NTL–5 retroactively; we still would not have anything even approaching a marginally-comprehensible explanation of payments to a company, payments made to individual allotees, as the law requires. So, for all of that assistance that we have received from this committee and the staff here over the years, we want you to know that's not unappreciated, and we realize that all our best efforts notwithstanding, that until we got the assistance that we asked from this committee, we still would not have made the progress that we have.

Having said that, however, we're still not where we need to be. In fact, the chairman spent a day or so on the record with the previous Director of MMS discussing a number of concerns that we pointed out in a letter here some years ago.

After the $50 or $60 or $80 million investment that agency has made in its computerized systems, it has been virtually impossible to undo the results. But we continue to try to work with them and try to work some of these things out.

We think that, with the new Director, we have kind of a new atmosphere for a better relationship. He has made some significant commitments to try to work with us. His people have spent more time out on the reservation since he's been there than perhaps in the entire previous history of the agency.

But we still have a number of problems. With the revenue accounting system, we have an audit cycle that is totally unacceptable but, even at that, it's tied up in court by some industry representatives now, that may put a six-year period on the length of time a Secretary can reach back to compel documents. All during that period, from the birth of the agency until now, we have been trying to argue for more contemporaneous and a more active audit cycle, but instead we waited 10 years while they tried to devise—to put a fence around the universe and computerize a system. The result is that we may have a bunch of tribes now with not much recourse but to go to court against the Secretary and the Department, and go to the claims courts for recourse against the Government, if we can't go back against the companies who are the ones that actually owe us still a good deal of money.

We have seen, again largely through the assistance of this committee, the agency agreed to undertake a production accounting system. Notwithstanding that the law clearly required one eight years ago, it took them seven years to agree to try to do one. The system they've devised mirrors many of the flawed assumptions we think they made in the revenue accounting system.

As if those things weren't bad enough, the industry itself, as I'm sure you've heard a thousand times over the last few days here, is changing just dramatically and radically. Where we used to maybe have one guy marketing gas from an individual Indian's well, we now maybe have four interest owners marketing that gas from a single well. We don't have a record system that even tells us who those four guys are. Trying to find them and keep track of them continues to be a problem.

With all of—and I've recited quite a litany of the issues that continue to come between us and an acceptable system of minerals revenue administration. What we'd like to ask you today, sir—in fact, we noticed that the agency has also requested it, but we'd like to encourage this committee and urge you to direct the agency, beginning in fiscal year 1991 if they cannot do it before then, to provide full funding to the cooperative agreements between the agency and tribes.

These tribes have been required to spend entirely too much of their monies to try to help the agency work out problems that we could have avoided if we had had a more cooperative attitude going into this.

I would also like to ask—and this is the first time we've made this request—that the tribes' organization, the Council of Energy Resource Tribes, be provided with some assistance from the agency next year. It's a terribly expensive proposition to run around the country and try to bring industry, the States, the agency, and all of the tribes and the various individual Indian owners' associations interest and consensus on these issues, and we've had to divert other assistance that this committee has provided from the Bureau of Indian Affairs and other agencies to deal with MMS problems. So, we're asking that, beginning in 1991, that the committee direct MMS to make some contribution to our effort to help them work out their problems.

If I may, one more thing: we'd like to—when the Secretary and/or the Director appear here, we urge you to urge them to put some of the petty bickering behind them that's going on in-house over there and make a payment that the courts have awarded to a set of attorneys that spent six years in court, not trying to collect damages or not going after any award, but just to compel the Department to comply with the law in the administration of mineral, oil, and gas properties for a group of largely non-English- speaking Navajos in New Mexico and Utah.

The courts have ruled, the judgment has been awarded, and the agencies are now over there pointing fingers at each other, trying to decide whose pocket and out of what years it should come. But, in the meantime, the group of attorneys out there that have been their homes on the line and carried this fight for six years are—we think it's time for them to be paid, so we could put this whole episode behind us and get on with some constructive work.

Now that basically concludes what we came prepared to say.

Mr. **Atkins**. Thank you very much. We will be happy to pursue the issues that you have raised with MMS when they come in before the committee later this year. We appreciate your efforts, and we appreciate your good work in a very difficult area.

Mr. **Harrison**. Thank you very much, sir.

[The prepared statement of David Harrison follows:]

STATEMENT OF DAVID C. HARRISON OF THE COUNCIL OF ENERGY RESOURCE TRIBES REGARDING FISCAL YEAR 1991 APPROPRIATIONS FOR THE MINERALS MANAGEMENT SERVICE

BEFORE THE SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES, COMMITTEE ON APPROPRIATIONS, U.S. HOUSE OF REPRESENTATIVES

MARCH 8, 1990

Mr. Chairman, on behalf of the 44 federally recognized tribes that comprise the Council of Energy Resource Tribes, I would like to express our deepest appreciation for the leadership that this committee and its staff have provided in our efforts to bring the Department's administration of federal and Indian mineral properties into compliance with the law in the last few years. Without your help, very expensive and time-consuming litigation would have certainly been required to get MMS to establish an onshore production accounting system; the agency would have persevered in its efforts unilaterally to modify NTL-5 retroactively for Indian leases at a cost of tens of millions of dollars to Indian mineral owners; the BIA's regulations implementing the Indian Mineral Development Act of 1982 would have been left on the books contrary to law; and we still would not have an Explanation of Payment Form that is even marginally comprehensible. We just want you to know that we know that we would not be where we are now without your help. And for that, we are very, very grateful.

We still are not where we need to be, however, and we are here today to ask for your help one more time. We still have a tremendous amount of work ahead of us in the area of minerals management.

We have seen the Initiative for Indian tribes and Allottees that MMS has proposed and, while we generally applaud those efforts, we want to make it clear that these steps will by no means address the issues that continue to concern us. At least one of the "Action Elements" in this initiative is likely to cause more trouble than it is worth, and that is the proposal of MMS to negotiate with tribes an alternative valuation method to the major portion analysis. Were that is not possible, the agency proposes that the Secretary "would exercise his trust responsibility to determine the valuation method." Our experience has been when MMS uses that language, it is a euphemism for announcing a decision that is administratively convenient, but not in the best interests of the Indians to whom he owes a fiduciary duty. Clearly, a great deal of work remains to be done on this issue. We suggest that if he believes he does not have authority under current law to administer these leases in accordance with their own terms and his regulations, he should seek that authority rather than an alternative that would allow him to evade that responsibility.

We do look forward to working with Barry Williamson, the new Director of MMS, and we appreciate the overtures he has made and the commitments he has given to work with us. His people may have logged more time in Indian country since he came on than in the entire previous history of the agency. But lest this committee be left with the impression that everything is going swimmingly, I would like to recite for the record a few of the major issues that continue to defy resolution, even after years of effort to focus the Department's attention on them.

These issues range from the most absolutely basic to the most arcane and esoteric. At the most basic end, we have yet to persuade the Department of the importance of complete lease records. The lease records do not reflect all the interest owners in production or the holders of horizontally separated rights created by farmout and farmin agreements. Scores, if not hundreds, of assignments are pending approval, and much realty work remains to be done before some of these assignments can be perfected, even though lease operations continue as if they were approved. The entire mineral lease records system, in fact, is badly in need of modification.

Improvements in lease compliance activities are needed to require approval of designations of operators; to make routine and timely determinations of production in paying quantities; in determining drainage and diligence issues; in making value determinations for royalty purposes; in funding cooperative agreements between tribes and BLM; and in redirecting assessments and penalties from the government to the Indian mineral owners.

In the areas that are peculiarly the province of MMS today, we still do not have the revenue accounting system under control, and a great deal of difficult work remains to be done. The present accounting system leaves much money unpaid and relies on an audit strategy to capture it. The audit strategy itself, however, is designed to look at only a small sample of the leases. There are no production auditing procedures or strategies at all; no procedures for validating the accuracy of measuring equipment, and no procedures for correcting incorrectly reported measurements of volume, value, and quality.

Some companies make monthly adjustments of virtually every line of information reported to MMS; some companies are recovering advance rentals purportedly due them from production with no record to substantiate their claims; there is still no systematic protection against over-recoupment of royalty payments; the audit cycle is designed around considerations having nothing to do with timely payment of royalties; pending litigation threatens to put a six-year limit on the Secretary's ability to compel documents, and, thus, threatens the results of nearly 20 years of litigation brought by one tribe to establish the Secretary's responsibility to conduct dual accounting on most Indian leases. This situation may well compel many tribes to file protective lawsuits against the Secretary and the government in the Claims Courts if certain industry representatives are successful in preventing successful accounting for production prior to 1984.

The systems-driven accounting procedures utilized by MMS continue to accept without question totally arbitrary figures in reporting the quality of production; because major portion analyses are not being conducted, no minimum value determinations are being made for production from Indian lands; the basic revenue reporting form (Form-2014) remains inadequately designed to capture information at appropriate levels, *i.e.*, at the well level or the tank battery level; no satisfactory method exists for monitoring or verifying allowances which are claimed by companies; procedures for auditing non-standard leases are inadequate and not in accordance with industry standards; and the agency has yet to agree to an acceptable means of addressing any of these revenue accounting measures.

MMS has also assumed primary responsibility for the production accounting system, and much remains to be done in this area as well. Many of these issues simply mirror mistakes made by the agency in the design of the revenue accounting system, *e.g.*, collecting information at the lease level rather than at the well level or the tank battery level. There is no procedure for independently verifying production information reported; approvals are routinely given retroactively for questionable or wasteful practices such as flaring gas; and there is no procedure for validating the accuracy of measuring equipment.

A major issue facing all producing tribes is the multiple taxation of reservation production sanctioned by the Supreme Court in the Cotton Petroleum Corp. v. New Mexico decision, and no agency of the Department is providing any advice, counsel, guidance, assistance, or leadership in addressing this important issue. The importance of this issue simply cannot be overstated, but the Department simply does not even recognize it. Incalculable costs will be visited upon Indian tribes and individuals by virtue of the wells that will be prematurely abandoned, and the prospects that will not be drilled as a result of the situation created by this decision

The tribes have been spending inordinate amounts of their own money and grants from other agencies to try to work through these issues with MMS. Individually, they receive only 50% of the amount budgeted in their cooperative agreements with MMS. Even though MMS is working on regulations to authorize full funding of these agreements, we are asking this committee to direct the agency to provide full and adequate funding for these agreements beginning in FY 1991. It is our understanding that the many states also experience difficulty with adequate funding of their agreements with MMS, even though they are already supposed to receive 100% funding.

In addition, we are requesting that MMS be directed to provide the Council of Energy Resource Tribes with a minimum of $250,000 in FY 1991 in order to defray the expenses of this tribal organization in its continuing efforts to work with the agency, all producing tribes, allottee organizations, and industry organizations throughout the country to bring constructive consensus to these vexing issues. The tribes should not be required to divert scarce resources available to their organization from other sources and agencies to continue to deal with MMS problems in a coordinated fashion.

And, finally, we implore you to encourage Secretary Lujan, when he appears before you, to act decisively and to direct the prompt payment of attorney fees, costs, and expenses awarded by the court in the case of Shii Shi Keyah Association v. Lujan. In this case, a group of courageous lawyers in New Mexico have mortgaged their homes to carry the burden of a now six-year long struggle, not to collect damages or awards, but simply to compel the Department to comply with the law and to discharge its fiduciary duties to a group of largely non-English speaking Navajo allottees in New Mexico. The Department's conduct throughout this litigation was often arrogant and contumacious while the individual Indian plaintiffs were being evicted from their residences and losing their only means of transportation to repossession. Following the entry of a consent decree, the Department spent months contesting the applicability of the Equal Access to Justice Act on the grounds, *inter alia*, that the attorneys should be put to the affirmative proof that the aggregate net worth of the class of plaintiffs was less than $7 million. The plaintiffs prevailed; the judge has ruled; and we respectfully suggest that common decency requires that the Department make these payments promptly in order that this unfortunate episode can be put behind us, and in order that we can get on with the important work remaining before us.

Many of the shortcomings which we pointed out to this committee some three years ago, and which the chairman spent a day on the record visiting with the Director of MMS about, are now becoming more and more apparent. A systems-driven method is becoming increasingly obsolete as the industry changes its practices, the courts clarify the law, and changes in the marketplace outstrip all these other changes. The agency simply must be directed to invest more of its resources in the capabilities of the tribes themselves to deal with these issues.

That concludes our prepared statement, Mr. Chairman. Once again, we would like to express our appreciation for the assistance and leadership that this committee and its staff have provided us over the years. As long as the list of unresolved issues, a great deal has been accomplished with your assistance, and we believe that with the additional assistance we have requested today that much more can be accomplished under the present leadership of the Minerals Management Service.

I shall be happy to respond to any questions that you or the Committee may have. Thank you very much for the opportunity to appear here today.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/OFFICE OF SURFACE MINING—VARIOUS ISSUES

WITNESS

CATHY CARLSON, LEGISLATIVE REPRESENTATIVE, NATIONAL WILDLIFE FEDERATION

Mr. ATKINS. The National Wildlife Federation, Cathy Carlson?

Ms. CARLSON. Mr. Chairman, I had such a good time here yesterday, I thought I'd be back today to share with you a few thoughts about the Office of Surface Mining.

First, we'd like to say that we believe the budget proposal for OSM for this year represents a significant improvement over funding requests from previous years. I just wanted to point out a few issues in the budget.

First, we'd like to thank the subcommittee for its support for the amended order in the Save our Cumberland Mountains litigation, which included funding for the applicant violator system, or AVS, that blocks permits to coal operators with outstanding, unabated violations of the surface mining act. We think significant effort has gone into identifying the problems with the permit block system as it is today, and we hope with the recent settlement between the plaintiffs and the Interior Department in this litigation—we think the groundwork can be laid for the Department to implement an effective enforcement program against SCOFLA coal operators.

NWF supports the additional funding that's required for the implementation of a settlement agreement in this year's budget. We note, however, that there has been no agreement reached yet between the OSM and the States regarding the funding formula for implementation of the agreement. Our concern is that adequate funding be made available for implementation of the settlement agreement, and we ask the subcommittee to urge OSM and the States to try to reach an agreement on the funding mechanisms for implementation of the settlement agreement as soon as possible to avoid delay in implementation of this agreement.

Second, I just wanted to point out to the subcommittee that the effort by this Congress to fund improvement in the Kentucky surface mining program has proven to be a great success. In the most recent review of the Kentucky program, significant improvement in enforcement is in evidence. The support of this subcommittee and the Kentucky congressional delegation for this agreement was critical to the creation of a revived enforcement program in Kentucky.

Finally, I hope the subcommittee continues to provide adequate funding for the Abandoned Mine Land program. We are disappointed to see that the President's efforts to improve America with the "America the Beautiful" program, which you heard so much about yesterday, does not extend to cleaning up the public health and environmental hazards in the coal fields using AML funding.

A lot of work remains to be done to correct the damage that continues to be caused by abandoned coal mines. We urge the subcommittee to continue its strong support for State and Federal abandoned mine land projects and for the rural abandoned mine land program.

Mr. ATKINS. Thank you very much.

Ms. CARLSON. Thank you.

Mr. ATKINS. Now you support the Administration request for OSM, and I note that you're in strong agreement in terms of the Save our Cumberland Mountains versus Lujan settlement, implementation of the settlement that's in the budget.

Ms. CARLSON. Yes, that's correct.

Mr. ATKINS. It's my understanding that the States that are involved don't feel that the settlement amount is sufficient. Is that your understanding?

Ms. CARLSON. Yes, that's my understanding as well. And the——

Mr. ATKINS. In light of the fact that you support the Administration request, is that an indication that you feel that that amount of money is sufficient for the settlement?

Ms. CARLSON. I believe if the cost share—if the funding formula for implementation of the settlement agreement is going to be 50 percent funded by the Federal Government, 50 percent funded by the States, there should be adequate resources in the Federal budget request for that.

If, in turn, as been proposed by the States and has been discussed by the subcommittee on mining natural resources, that there's a different formula that's put into effect, whether it's an 80 percent Federal share or a 100 percent Federal share, I think that the Interior Department and the subcommittee need to review the amount of money that's currently in the budget to determine whether or not the funding is sufficient.

Mr. ATKINS. Does the National Wildlife Federation have a view on what the percentage formula should be?

Ms. CARLSON. No, we don't have a dog in that fight, Mr. Chairman. [Laughter.]

Mr. ATKINS. Okay. Could you submit to us for the record your view in terms of setting aside the issue that you wisely stayed out of, of the actual shares, but of the total cost of the settlement, your views as to why that total cost in the President's budget is adequate?

Ms. CARLSON. Certainly. I'd be happy to.

Mr. ATKINS. We'd appreciate that.

Thank you.

Ms. CARLSON. Thank you.

[The prepared statement of Cathy Carlson follows:]

Working for the Nature of Tomorrow®

NATIONAL WILDLIFE FEDERATION

1400 Sixteenth Street, N.W., Washington, D.C. 20036-2266 (202) 797-6800

March 22, 1990

The Honorable Sidney Yates
Chairman, Subcommittee on Interior
and Related Agencies
House Committee on Appropriations
B-308 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Yates:

During the hearing on March 8, 1990 before your Subcommittee regarding Fiscal Year 1991 appropriations for the Office of Surface Mining Reclamation and Enforcement, and other energy-related programs, I was questioned regarding the funding available in the Office of Surface Mining (OSM) proposed budget for funding the new Settlement Agreement in Save Our Cumberland Mountains v. Lujan. Specifically, I was asked to provide for the record additional information to determine whether sufficient funds are included in the FY 1991 budget proposal to fund implementation of the Settlement Agreement.

The principle source of funds available for implementation of the Settlement Agreement would be the Assessments and Collections account in the OSM budget. Funding from this account has been used to finance the development and operation of the Applicant Violator System, to fund the management personnel and data verifiers associated with the AVS (AVS Clearinghouse), and to cover the costs of individual civil penalty assessment and collection functions at OSM - all of which are elements in the new Settlement Agreement. All these tasks have received considerable financial support from the Congress.

However, it is difficult to discern from the budget justification exactly what funds are available for AVS implementation. In contrast with the Collection Management Information System, the budget justification does not include a separate "line item" for the AVS. Table 1 (attached) indicates the budget requests, and appropriations for AVS during the past few years.

Based on the available information, it appears that the majority of the $8.5 - $9.0 million in the Collections function of the Collections and Activity Subactivity is available in the FY 1991 budget justification to finance the AVS and Clearinghouse operations. Included in this estimate is the $2.875 million addition requested by OSM to fund implementation of the new Settlement Agreement, including funding for state efforts to implement the Agreement. The Collections function includes funds not only to cover the costs of maintenance of the AVS, it covers the costs of AVS Clearinghouse personnel, and the other agency functions associated with the management of the AVS.

The FY 1991 budget also could be enhanced by increasing the available funds for AVS implementation, due to a savings by removing the operation of the AVS from the mainframe computer at U.S. Geological Survey. In representations to the House Interior and Insular Affairs Committee, and to this Subcommittee, it appears that U.S. Geological Survey charges OSM between $1.5 and $2.0 million annually to maintain the AVS on its computer. Therefore, at least $4.875 million could be available to fund the federal and state implementation of the Settlement Agreement in FY 1991, if OSM could save on its maintenance costs associated with running the system on the U.S. Geological Survey computer.

At least two possible scenarios for funding the Agreement are under consideration, to determine whether the funding included in the FY 1991 budget will be adequate for implementation of the Settlement Agreement. Under the first scenario, Congress could direct OSM to fund state efforts to implement the Settlement Agreement using a 50-50 federal-state cost share formula. OSM appears to believes that its proposed funds, or $2.8 million, will be adequate to cover the federal cost share.

Alternatively, Congress could direct OSM to federally fund the majority or all of the state efforts to implement the Settlement Agreement. The states have indicated that $4.0 million will be required in federal funds to cover the 100 percent federal cost share of implementing the Agreement. The $4.0 million figure appears to represent a preliminary, best guess on the costs to the states of implementing the Agreement. The actual cost of state implementation may differ somewhat from this amount. OSM could have at least $4.0 million in its Collections account to cover the costs of implementation, and should be able to finance the total cost of state implementation out of this account, if the Congress directs the OSM to finance state implementation of the Settlement Agreement using the 100 percent federal cost share.

In summary, funding for implementation of the Settlement Agreement appears to be available in the OSM budget request for FY 1991, regardless of the federal-state cost share arrangement, assuming that OSM works out an alternative arrangement to maintaining the AVS on the U.S. Geological Survey mainframe.

Thank you for the opportunity to supplement the hearing record with information regarding the funds needed to implement the Settlement Agreement. The National Wildlife Federation strongly supports the Settlement Agreement, and is seeking its effective implementation in a timely manner.

Sincerely,

Catherine A. Carlson
Legislative Representative
Public Lands and Energy Division

Attachment

cc: Rep. Chester Atkins

Table 1. Funding Requests */ and Appropriations for Development and Implementation of the Applicant Violator System.

	Administration Request (millions)	Congress Appropriation (millions)
FY 1991	$8.5 - $9.0	
FY 1990	$6.894	$6.8
FY 1989	$6.3	$6.3
FY 1988	$6.3	$6.3
FY 1987		$3.?
TOTAL		$22.2 +

*/ This Table assumes that the vast majority of funds included in the Collections activity under the Assessments and Collections account have been primarily devoted to development and implementation of the AVS and staffing of the Clearinghouse since 1987. The other principle agency function under the Collections activity has been the reclassification of $134 million in outstanding civil penalties. The percentage of the Collections account going to penalty collections operations has been reduced considerably since 1987.

Working for the Nature of Tomorrow
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TESTIMONY OF

CATHY CARLSON
LEGISLATIVE REPRESENTATIVE
NATIONAL WILDLIFE FEDERATION

BEFORE THE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

REGARDING

FISCAL YEAR 1991 APPROPRIATIONS
FOR THE
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

MARCH 8, 1990

Thank you for the opportunity to present the views of the National Wildlife Federation on the Fiscal Year 1991 appropriations for the Office of Surface Mining Reclamation and Enforcement (OSM). The National Wildlife Federation represents more than 5.6 million members and supporters throughout the United States and territories. Many of our members live and recreate in areas where surface mining for coal is occurring, and are impacted by the regulatory activities of OSM. NWF is seeking adequate funding for the Settlement Agreement in Save Our Cumberland Mountains et al. v. Lujan, for the Technical Information Processing System, and for the Abandoned Mine Land programs. In addition, we take this opportunity to share with the Subcommittee the successes under the Kentucky Settlement.

OSM's budget proposal for regulatory program activities represents a significant improvement over funding requests from previous years. The agency identifies the pressing need for increasing reclamation grants to the states, to enable the states to match funds and increase the capability of state regulatory programs. In addition, OSM has identified funding needs for implementation of the settlement agreement in Save Our Cumberland Mountains v. Lujan, Civ. Action No. 81-2134 (D.D.C., entered on January 22, 1990). The National Wildlife Federation (NWF) supports the President's budget for OSM, and offers a few specific remarks.

1. SOCM v. Lujan Settlement Agreement

NWF would like to thank the Subcommittee for its support for the Amended Order, which included funding for the AVS to block permits to coal operators with outstanding, unabated violations of the Surface Mining Act. We believe the permit block system is one of the best enforcement tools to stop patterns of abusive mining practices that plague the coalfields. As the Chairman is aware, previous efforts to implement the AVS have not been successful. The current AVS has faulty and incomplete data and simply does not fulfill the need for an effective enforcement tool. As a result of the failure of AVS to block permits to abusive coal operators, Save Our Cumberland Mountains et al. renegotiated with the Interior Department the improvements needed in the AVS computer system and the overall enforcement effort.

On January 22, 1990, the plaintiffs Save Our Cumberland Mountains et al., and Secretary of the Interior Manuel Lujan et al. reached an agreement on the best course of action to improve implementation of the permit block system required under Section 510(c) of the Surface Mining Act, including improvements in the Applicant Violator System (AVS). Specifically, the Settlement Agreement will:

- greatly improve the data collected and used to determine if companies seeking permits to mine have outstanding, unabated violations;

- ensure that available federal and state data will be used to determine relationships between owners and controllers of applicants and violators;
- ensure that complete and up-to-date information on permit applicants is included in the application for a surface mining permit;
- cause OSM to develop and implement a tracking system for keeping track of permit applications that are issued and denied, and to keep track of actions taken on permits that are improvidently issued; and
- improve OSM's efforts to take alternative enforcement action against coal operators with outstanding, unabated violations of the Surface Mining Act.

NWF believes the improvements to AVS and the permit block system embodied in the SOCM v. Lujan Settlement Agreement will provide important new tools to ensure that scofflaw coal operators do not continue to mine coal without performing adequate reclamation, as required by the Surface Mining Act.

OSM requested an increase of $2.995 million over the appropriation provided by Congress last year for Assessments and Collections, primarily for improvements in AVS to meet the terms of the Settlement Agreement. NWF supports the additional funding required for implementation of the Settlement Agreement. We note, however, that this increase assumes that State activities relative to implementation of the Settlement Agreement will be funded on a 50-50 cost share with the federal government. The question of funding for State activities to implement the Settlement Agreement was raised before the House Interior Subcommittee on Mining and Natural Resources during its oversight of the OSM budget request for Fiscal Year 1991. It appears that a consensus has yet to be reached between the state regulatory authorities and OSM on the funding mechanism to the states to meet the obligations under the Agreement. The states and OSM should work together in a spirit of cooperation to reach agreement on the amount of funding needed and the mechanism.

NWF requests that the Subcommittee provide adequate funding for implementation of the Settlement Agreement, whatever the funding mechanism that is worked out. We ask the Subcommittee to urge OSM and the states to reach an agreement on the funding mechanisms for implementation of the Settlement Agreement, to avoid delay in implementation of the Agreement.

Kentucky Settlement Funding

Fiscal Year 1991 represents the fourth and final fiscal year for federal funding of the Settlement Agreement in a lawsuit brought by the National Wildlife Federation over the lack of enforcement of the federal Surface Mining Act by the Kentucky Natural Resources Cabinet. The support of this Subcommittee and the Kentucky congressional delegation for this Agreement was critical to the creation of a revived enforcement program in Kentucky, which has almost 40 percent of all coal mines in the United States.

I want to take this opportunity to thank the Chairman for his support of the Kentucky Settlement Agreement. The Agreement has turned out to be a success beyond our expectations. According to the latest report by the Kentucky Natural Resources Cabinet, a complete reversal in state performance in its inspection and enforcement program has occurred. Specifically -

- OSM reported that the percent of violations observed and cited by Kentucky has increased from 69 percent to 95 percent.
- Kentucky greatly improved its alternative enforcement against operators who failed to resolve outstanding violations, and arrested 27 people over a two year period for failure to comply with the law.
- The number of illegal (wildcat) operations has decreased precipitously in eastern Kentucky.
- Kentucky's rate of collection of civil penalties is now greater than OSM's rate of collection of civil penalties, despite greater difficulties collecting state penalties faced by Kentucky.

In short, thanks to the support by this Subcommittee, the abuses under the Kentucky program have been greatly curtailed.

Technical Information Processing System

NWF requests the Committee provide sufficient funds for OSM to continue to maintain and expand TIPS in the FY 1991 budget.

The Technical Information Processing System, or TIPS, appears to be a significant achievement for the technical support staff at OSM. TIPS is accessible from all state regulatory authorities (except Alabama, Arkansas, Illinois, Louisiana, and Oklahoma) to assist states with technical information used in evaluating surface mining permit applications. For example, Pennsylvania uses the TIPS data for stratigraphic and geologic analyses of mine sites. Montana and Virginia find TIPS useful in their development of a Cumulative Hydrologic Impacts Analysis system to evaluate water resource impacts of permit applications.

Despite the value of the computer system, OSM's budget request for FY 1991 does not provide sufficient funds in the federal Technical Services, Training and Research subactivity to maintain the system. The proposed budget of approximately $700,000 falls short of the annual operating costs of TIPS. In addition, the remaining states that do not have access to TIPS are reluctant to purchase new TIPS equipment, due to uncertainties in the funding for this program.

Abandoned Mine Land Program

NWF requests that the Subcommittee restore adequate funding levels for the Abandoned Mine Land Program.

Mr. Chairman, we were disappointed to see that federal and state abandoned mine land (AML) reclamation programs were proposed for reduction again this year. It appears that the President's effort to improve America with the "America the Beautiful" program does not extend to cleaning up public health and environmental hazards in the coalfields using AML funding. Projected receipts for Fiscal Year 1991 exceed $250 million, while OSM requests less than $150 million for the program. The unappropriated fund balance will grow to over $640 million in 1991 earning interest for the federal Treasury instead of being spent cleaning up the coalfields, as Congress intended when it enacted the Surface Mining Act.

Despite the 12 years of effort under the Abandoned Mine Land program, a lot of work remains to be done to correct the damage that continues to be caused by abandoned coal mines. One of the greatest threats to the environment from abandoned mines is acid mine drainage, that spews from abandoned mine openings into water supplies and creeks throughout the coalfields, fouling water resources. These types of environmental problems will be addressed only after the health and safety problems from abandoned mines are corrected, which is as it should be. But the program needs a strong funding base to continue cleanup efforts, so that the safety problems can be corrected and the program can turn to the major environmental damage continuing as a result of abandoned mines.

NWF urges the Subcommittee to continue its strong support for state and federal abandoned mine land projects, and for the Rural Abandoned Mine Land program. An adequately funded AML program is the only hope for many communities to reclaim the scars left by past mining activities.

Thank you for the opportunity to testify at today's hearing on the Fiscal Year 1991 appropriations for the Office of Surface Mining.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESS

ROBERT GENTRY, CITY OF LAGUNA BEACH, REPRESENTING THE COASTAL CITIES OF ORANGE COUNTY: LAGUNA BEACH, NEWPORT BEACH, DANA POINT, SAN CLEMENTE, AND HUNTINGTON BEACH

Mr. ATKINS. Robert Gentry, city of Laguna Beach?

Mr. GENTRY. Good afternoon, Mr. Atkins. I apologize for not having written testimony to hand out to you today. This trip was put together rather quickly, and I will fax it to the office as soon as I return to California.

I am Robert Gentry, and I am former mayor and city council member of the city of Laguna Beach, California. I'm here this afternoon representing the coastal cities of Orange County, including not only Laguna Beach, but Newport Beach, Dana Point, San Clemente, and Huntington Beach. I also serve on Governor Deukmejian's local government advisory committee on OCS.

I first want to thank the committee for its longstanding concern about the California coast and its annual interest in moratoria. I'm here today to ask that that be continued.

As many of you know, a month ago yesterday, 400,000 gallons of oil hit the beaches of Orange County. I bring to you a photograph from The Los Angeles Times which shows the fact that our beaches have been closed and there has been crude oil on the beaches in such a way that we have never experienced before.

This has been a devastating experience for the coast of Orange County. We are proud of our tourist business which is over $4 billion a year, with over 100,000 jobs attached to that tourist industry. One ship, that happened to trip on its own anchor and puncture two holes in its hull, generated the kind of disaster which Orange County has not experienced in several years.

We feel, frankly, that we need that moratoria again for another year because the industry and the Department of the Interior just have not been able to deal with this kind of disaster.

I must tell you that the Minerals Management Service indicates to us in their study as recently as 1987 that a spill of exactly this amount would close the beaches for only two weeks. Our beaches are still closed. Some are opening today and some have opened yesterday, but they basically have been closed now for a month.

Even the data that comes from Minerals Management Service about a spill exactly this size is incorrect. That, I think, coupled with the National Academy of Sciences' information, which indicates that we do not have enough scientific data to proceed with additional drilling along the California coast, is enough evidence in itself that we need to continue the moratoria.

It is obvious to us that we don't have the technology to handle such a disaster. We were considering, or the clean-up operations were considering, burning the oil. They were considering chemically-dispersing it using absorbent materials, and skimming it. All of those methods could not be used in Orange County because of a number of things. Frankly, we were very, very lucky that Mother Nature did as much to help clean the oil as did all the technology that we had.

Mother Nature provided the coast of California with ideal conditions for an oil spill. It took the oil during the warm days and moved it gently onto the shore, onto our strand-oriented beaches, just the ones that could handle the oil, and at night moved the oil back off of the beach out into the water where it could be contained. Had we had a winter storm like we were having yesterday in California, the situation would have been extremely different and difficult.

I also want you to know, frankly, that the people of Orange County are outraged at this. They have been told year after year after year that this could never happen here, and if it could happen here, clean-up operations would move immediately into the area and it would mitigate the problems.

Additional oil development along the coast of California, and particularly Orange County, will result in additional transportation of that oil. The Minerals Management Service itself indicates that expanding the industry requires additional expansion for transport.

So we know also that several accidents are occurring with the transportation of the oil and not necessarily the exploration of the oil, but those two cannot be separated. The Department of the Interior itself indicates that we are at risk for additional oil spills in the days and years ahead.

Public opinion in California is very strong on this issue, and we again request that the moratoria be continued.

Mr. ATKINS. Let me ask you—the President received a report of his task force on the Outer Continental Shelf in January. It's my understanding that it's not been released yet. Do you have a position in terms of how we should act vis-a-vis the President's task force? Is it your recommendation that we act irrespective of the President's task force?

Mr. GENTRY. I certainly think that, whatever the President's task force says, which we don't know what the results of that task force are, that Congress needs to lock in the protection for the coast. It's not going to happen in a short period of time from that task force. Even if the task force indicates that the California coast, and the western United States particularly, are sensitive areas, it would seem to me that it needs to be locked in through this procedure.

The Department of Interior may proceed in other ways to begin to open up the system which this committee has consistently been able to mitigate.

Mr. ATKINS. As you're aware, as an appropriations subcommittee, we're not able to put into place a long-term moratorium.

Mr. GENTRY. I understand that.

Mr. ATKINS. We can only——

Mr. GENTRY. We're talking a year only.

Mr. ATKINS [continuing]. Operate a year at a time.

Mr. GENTRY. I understand that. But each year is very precious to us.

Mr. ATKINS. I appreciate that, and I appreciate your candor in admitting that southern California has winter storms. [Laughter.]

Mr. **Gentry**. You bet we do.

Mr. **Atkins**. I didn't know that such a thing occurred. You might be in trouble with the tourism bureau.

Mr. **Gentry**. Thank you, sir.

Mr. **Atkins**. Thank you.

[The prepared statement of Robert Gentry follows:]

TESTIMONY OF
COUNCILMEMBER ROBERT GENTRY
CITY OF LAGUNA BEACH, CALIFORNIA

BEFORE THE
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

ON THE DEPARTMENT OF INTERIOR'S
OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM

MARCH 8, 1990

Good afternoon, I am Robert Gentry, City Councilmember in Laguna Beach, California. I am representing the coastal cities of Orange County this afternoon including Laguna Beach, Newport Beach, Dana Point, San Clemente, and Huntington Beach. In addition, I serve on Governor Deukmejian's Local Government Advisory Committee on OCS.

I want to begin by thanking you for your commitment to preserving the California coast and your wisdom in enacting a one year moratorium toward that end. You are heroes and heroines along the Orange County coast. You have been correct in your actions over the years.

The recent position of the National Academy of Sciences affirms your action. They determined that there just isn't sufficient scientific data regarding the risks of oil and gas exploration along the California coast to proceed with the expansion of that program. We thank you for your foresight.

One week ago yesterday, February 7, 1990, the American Trader tripped on its own anchor, puncturing two holes in the single hulled ship and 400,000 gallons of crude spilled into the ocean off of Huntington Beach. We have been told over the years that this would never happen along our coastline. Well, the people of Orange County are outraged because this disaster did happen and it has closed several of our beaches for over a month now. We are wondering what effect this disaster will have on Orange County's $4 billion tourist industry and the 100,000 jobs that industry supports. It certainly is affecting the quality of one of this nation's most precious recreational resource. As of today, we are discovering oil buried in the sand, oil along the rocky shoreline, and oil on the sea floor. We were told this would never happen.

One thing is very clear. There is not sufficient technology to handle a 400,000 gallon spill and a moratorium is needed for another year to protect the California coast. Of the four basic methods of cleaning the ocean and the shoreline - burning, skimming, chemical dispersants and mopping up - only two were feasible to handle this disaster, skimming and mopping. In all candor, Mother Nature did more to assist the clean up operation than the technology itself. She provided ideal weather conditions for the spill. She gently deposited the crude on our strand oriented beaches during the day and then moved it back off shore at night. Had we been in the throes of a winter storm, the devastation would have been much worse.

Another strong reason to enact the annual moratorium is the fact that MMS in its 1987 study on the impacts of OCS development on recreation and tourism using the model of a similar spill would result in beach closures of approximately two weeks. This totally incorrect estimation echoes the National Academy of Sciences' position that the data just isn't there and when it is there, it is often inaccurate. How can we justify expanding an industry in light of this kind of planning using minimal and incorrect data. The moratorium is sorely needed.

In addition, the Department of Interior even predicts that 20-40 major oil spills will occur in federal waters as a result of the 1987 5-year program. The Orange County spill was transportation related, and more development will mean more transportation ever increasing the risk of accidents. Ladies and gentlemen, what are we doing? We are risking too much!

I also want you to know that there is strong public sentiment on this issue in Orange County and in the State of California. In 1985, the University of California asked the question about the desirability of industry expansion in Orange County as part of the University's annual survey of attitudes. In overwhelming opposition to expansion, those questioned were not in favor of such expansion by a margin of 2 to 1. It is very interesting to note that the margin of opposition held true for those living inland as well as along the shoreline. Mervin Field polled the people of California in 1987 regarding the same issue, and 50% of those surveyed were not in favor of further industry expansion. In addition, several California municipalities have recently passed ballot initiatives restricting onshore support facilities for offshore development. The people of California have had enough!

Again, I wish to thank you for your diligent stewardship of the California coast and your leadership and vision in protecting one of the world's greatest resources.

# # #

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESS

E. DEAN LAUDEMAN, DIRECTOR FOR RESOURCE DEVELOPMENT, UNOCAL CORPORATION; REPRESENTING THE AMERICAN PETROLEUM INSTITUTE AND WESTERN STATES PETROLEUM ASSOCIATION

Mr. ATKINS. Dean Laudeman, American Petroleum Institute?

Mr. LAUDEMAN. Thank you, Mr. Chairman and members of the subcommittee. My name is Dean Laudeman. I'm director for resource development for the Unocal Corporation. Thank you for inviting me here today to testify on behalf of the American Petroleum Institute. We've supplied written testimony to your committee and would like that to be entered into the record.

I am testifying today for the American Petroleum Institute and also the Western States Petroleum Association regarding the current moratoria on leasing Federal offshore lands, including some of the most promising petroleum prospects in the country.

In these days of dollar shortages in the Federal budget, I'm really here to give you a road map for additional income from oil and gas leasing offshore. I'm also here to respond to Robert Gentry's comments in which he is concerned about the transportation of oil into southern California, and I might add that, with proper offshore development, we would not have to bring in oil through tankers.

We ask the subcommittee to look at the petroleum industry's record of more than 35 years of operations in Federal offshore areas. That record provides overwhelming evidence that such operations can be undertaken without harm to coastal and marine environments. No U.S. offshore oil platform has experienced a major spill since 1970. Furthermore, in 1987, the most recent year for which the Coast Guard data has been compiled, only 659 barrels of 325 million barrels we produced from Federal offshore areas were spilled. That's a safe operations record of 99.998 percent, even better than Ivory soap.

Those who speak in favor of the moratoria cite these recent tanker oil spills as a reason to ban offshore oil and gas development. The petroleum industry deeply regrets these accidents, and we agree that more must be done to prevent such accidents and to contain spills when they occur. Tanker accidents must be avoided.

However, tanker accidents do not provide any logical reason to ban offshore drilling. Most tankers moving in U.S. waters carry imported oil. While 95 percent of the oil produced offshore comes ashore by pipeline, banning offshore development can only mean heavier U.S. reliance on foreign oil and increased tanker traffic, resulting in a higher risk of tanker operations.

The demand for energy, for oil and gas, is strong. Conservation efforts to reduce our demand are underway, but in real world terms such measures as insulation, new light bulbs, and expanded mass transit systems cannot significantly reduce U.S. reliance on petroleum energy in the foreseeable future, nor can we expect alternative energy sources to substitute for oil and natural gas in a major way any time soon. People will still drive gasoline-powered cars, have gas or oil fuel furnaces, and depend on fuels which are convenient, easily available, and transportable across the country.

We're all responding to conservation programs, but we must also continue to find and develop most of our domestic oil and gas resources to meet projected supply requirements of the next 10 to 15 years. No one disputes that many of America's best oil prospects lie offshore, nor I believe would anyone question that in the last 12 months since I last testified, this Nation's need to find and recover that oil has only grown more urgent.

I'd like to summarize with a few bullets: in 1989, U.S. oil production declined by more than 500,000 barrels a day. Experts in academia and Government are now joining those of us in the oil industry who have warned that oil production decline can only accelerate in the years ahead. During January, we imported 54 percent of our oil needs, all by tankers. That's an all-time monthly high.

Our heavy reliance last year on oil imports contributed 41.1 percent to an already massive U.S. trade deficit. In fact, in 1989 we exported $49.6 billion to buy foreign oil, which met 46 percent of our oil needs last year. In comparison, at the time of the Arab oil embargo in 1973, foreign oil met only 36.1 percent of our oil needs and cost us $7.1 billion.

We agree with James Schlesinger, former Secretary of Energy, who recently stated that, "Increased U.S. oil dependency has become the main engine for the restoration of OPEC power. A year has passed and none among us can claim that the country has made extraordinary energy conservation gains, nor can we pull from the shelf a substitute for oil that helps us meet our growing energy aptitude. Our demand for oil is over 16 million barrels a day; our imports are 8 billion barrels of oil a day.

Clearly, we need to find and develop more domestic oil and gas, and some of the best prospects for major discoveries lie offshore. In fact, the United States Geological Survey estimates that we've tapped only one-fourth of our undiscovered recoverable offshore reserves.

In short, offshore moratoria makes no economic sense. It threatens future U.S. energy security and does nothing to prevent future tanker accidents. I urge this subcommittee to reject efforts to reimpose the current moratoria and to permit continued environmentally-responsible, offshore development to proceed.

Thank you, Mr. Chairman.

Mr. ATKINS. Thank you. Mr. Laudeman, do you believe that the petroleum industry could have done things in Alaska which would have prevented the accident with the Exxon Valdez, that there were things that they didn't do that they could have done that would have made it less likely that that kind of an accident would have taken place?

Mr. LAUDEMAN. Well, Mr. Chairman, while I'm here speaking on behalf of the American Petroleum Institute, I am an upstream person, and I would have to defer—there is a trial going on in Alaska at the present time, and I would not like to say anything to prejudice——

Mr. ATKINS. I appreciate that, but I'm not asking you specifically about Exxon and the instance of that company. I'm asking you more generally, the industry, whether there are things in hindsight as industry that the industry would have or could have done which they didn't do, which they will do in the future, which would have made that kind of accident less likely.

Mr. LAUDEMAN. Well, this is what we're studying right now, Mr. Chairman. We're trying to effect new operating regulations——

Mr. ATKINS. When?

Mr. LAUDEMAN [continuing.] That would prevent that type of thing from happening.

Mr. ATKINS. When do you expect that study to be completed?

Mr. LAUDEMAN. Well, those studies are continuing now. If I might ask—we have the Petroleum Industry Response Organization.

Mr. ATKINS. When do you expect to have that?

Mr. LAUDEMAN. Well, the Petroleum Industry Response Organization is in place now, which is a group of companies that have funded a large organization to prevent the spill from becoming a very serious——

Mr. ATKINS. I appreciate that. Let me just ask, if I can, for the record——

Mr. LAUDEMAN. Yes.

Mr. ATKINS [continuing]. If you could, on behalf of the American Petroleum Institute, submit for us in writing your response to that question. While it's not specifically on target to OCS exploration, I'm sure you're aware there's significant exploration proposed off the coast of Alaska.

Mr. LAUDEMAN. Correct.

Mr. ATKINS. There are significant concerns relative to whether anything's changed with the industry, whether the industry has learned anything from the accident, whether the industry plans to change how they operate. I think that that has a tremendous bearing on the question of moratoria.

Could you also, for the record, indicate for us those things you indicate in your testimony: strict measures are in force to protect the quality of marine waters, to safeguard marine animals, and to maintain air quality? Could you list for us the efforts on behalf of the members of the American Petroleum Institute in doing those things and the cost figures? Also, could you indicate for the record for us all of those things which you've done to protect the quality of marine waters, to safeguard marine animals, and to maintain air quality, what you've done that you weren't required to do by Federal or State regulation?

Mr. LAUDEMAN. We'd be very pleased to do that, Mr. Chairman. We have been accumulating a large amount of that information, and we will submit those three items for the record.

[Material was submitted and is retained in the committee's files.]

Mr. ATKINS. We appreciate that. Thank you very much.

Mr. LAUDEMAN. Thank you.

Mr. LOWERY. Before the witness leaves, may I ask a question?

In the area of clean-up technology, what is being used——

Mr. LAUDEMAN. Well, Representative Lowery, we have again established this Petroleum Institute Response Group. We have established regional centers that would be able to respond more quickly than we have responded in the past. That type of a program is being instituted with full staff and the response equipment necessary for responding to a spill.

We will be surrounding those ports——

Mr. Lowery. So, what you're saying is that existing technology should help——

Mr. Laudeman. Yes.

Mr. Lowery. But, what is being done to advance technology? It seems that you were very fortunate in southern California because of the seasonal relative calm. The disaster could have been far worse than we realize.

But not only that, there's Valdez, and we've had four of these spills in the continental United States. What are we doing to improve the technology?

Mr. Laudeman. Well, we're—this is part of the research work and the development projects that the DIRO, as they call it, is mounting right now. Again, for the record, I would be happy to submit those, that work for the record.

Mr. Lowery. Okay, if you could divulge the amount of resources that are being put into this?

Mr. Laudeman. Yes, I will.

Mr. Lowery. Thank you.

Mr. Laudeman. Thank you.

[Material was submitted and is retained in the committee's files.]

Mr. Atkins. Thank you very much.

Mr. Laudeman. Thank you.

[The prepared statement of Dean Laudeman follows:]

Statement of
E. DEAN LAUDEMAN
Director for Resource Development
for the Unocal Corporation
on behalf of the
AMERICAN PETROLEUM INSTITUTE
and the
WESTERN STATES PETROLEUM ASSOCIATION
before the
HOUSE APPROPRIATIONS INTERIOR SUBCOMMITTEE

March 8, 1990

Mr. Chairman and members of the Subcommittee, my name is Dean Laudeman and I am Director for Resource Development for the Unocal Corporation. I am testifying today on behalf of the American Petroleum Institute (API) and the Western States Petroleum Association (WSPA). API represents over 200 companies involved in all aspects of the oil and natural gas industry, including exploration, production, transportation, refining and marketing. WSPA represents some 50 companies that conduct the majority of petroleum operations in six western states, including California, Oregon and Washington.

We are very much concerned that, at a time of declining domestic production and increasingly heavy dependence on oil imports resulting in a growing trade deficit, the Congress has for the last nine years -- through moratoria legislation -- placed much of the federal outer continental shelf (OCS) off-limits to petroleum exploration and development, including virtually all the best prospects for major new offshore discoveries.

This is not the time to delay access to OCS lands. These are lands which all Americans depend on for secure supplies of heating and transportation fuels. Responsible evaluation and development of those lands takes planning: the moratoria prevent funding of OCS sales and in some cases even the early planning and environmental studies necessary as a first step for the evaluation of such lands.

We strongly believe that continued, environmentally responsible offshore development is critically important to meeting future U.S. energy and economic needs. We urge the Subcommittee to carefully study the petroleum industry's record of more than 35 years of operations in federal OCS areas. We believe that record provides overwhelming evidence that such operations can be undertaken without harm to coastal and marine environments.

Proponents of the moratoria cite the recent tanker oil spill off Huntington Beach, California as a reason to ban offshore oil and gas development. The entire petroleum industry very much regrets that accident. Such an accident is never acceptable. We are working to prevent future accidents. However, we believe that a tanker spill provides no logical reason to delay development of the nation's offshore oil and gas resources.

Ninety-five percent of the oil from offshore platforms is carried to shore by pipelines. There has not been a major spill from an offshore production well in over 20 years. Moreover, in 1987 alone we produced 325 million barrels of oil in federal offshore areas with only 659 barrels spilled -- a 99.9998 percent safe record. Of all the oil detected in the oceans by a 1985 study of the National Academy of Sciences, only 2 percent worldwide came from offshore oil operations, far less than from municipal and river runoff, marine transportation or natural seepage from the ocean floor.

Keeping federal OCS areas off-limits will not reduce the risk of tanker accidents. In fact, it could increase the risk of oil spills because the less oil we produce at home, the more oil we have to import -- and that means more tanker trips to bring that oil into U.S. ports.

In my state of California, tourism and the real estate market are booming along a shoreline which has 24 offshore platforms in sight of the beach.

Strict measures are in force to protect the quality of marine waters, to safeguard marine animals and to maintain air quality. Offshore drillers must obtain 17 major permits and follow 74 sets of federal regulations. No geophysical vessel could operate, no drilling rig go into action, and no platform produce a drop of oil or a cubic foot of natural gas without full compliance with all applicable laws and regulations. These regulations ensure that the interests of coastal states and of the tourism and commercial fishing industries are adequately protected. The coastal states have many opportunities to influence federal decisions on the timing, size and scope of the offshore leasing program. They also have broad powers over exploration and development plans to ensure their compatibility with state coastal programs.

In short, there are no environmental reasons for continued delay in leasing federal offshore lands. On the other hand, there are critically important energy security reasons for moving ahead with offshore development.

We oppose renewal or extension of OCS leasing moratoria. We are beginning the tenth year of such moratoria, which now cover 84 million acres. Each year, proponents have presented the moratoria as only temporary measures that would have little impact on efforts to meet U.S. energy needs. But the effect of these measures has been neither short-term nor inconsequential. They have held back urgently needed planning for offshore oil and gas exploration activity, including drilling in federal OCS areas having some of the highest potential for new discoveries. This has significantly weakened efforts to strengthen U.S. energy security. This lack of new domestic production will invite us to revisit the supply disruptions of the 1970s. Moreover, the moratoria have compounded the harmful effects that low crude oil prices have had on domestic oil production since prices plunged in 1986, by denying us new supplies from OCS areas to offset production declines.

The Need for Offshore Oil and Gas Resources

Today, we find that crude oil imports are at a higher level than just before the 1973-74 Arab oil embargo, with imports during January 1990 meeting 54 percent of U.S. oil needs, an all-time monthly high. Although that exceptionally high figure reflected the record December cold wave, it indicates current energy trends and is a warning that we are not prepared for supply disruptions. Many thousands of offshore development jobs have been lost and workers are out of the labor market, now and in the future. Hundreds of drilling rigs are idle. And federal OCS revenues are down, at a time when federal budget deficits are of continuing concern to the Congress, the administration and the American public.

Offshore oil and gas operations have yielded over $90 billion of revenues to the federal government and -- of particular importance -- have supplied $8 billion to the Land and Water Conservation Fund for purchase of outdoor recreation land. That is a record we are proud of as representative of our many ongoing commitments to safeguarding the environment.

Reflecting the fall in oil prices which began in the early 1980s and accelerated in 1986, domestic oil production has fallen while consumption has increased. As a result, U.S. oil imports rose from 4.9 million barrels per day -- or 31 percent of consumption -- in 1985 to 8.0 million barrels per day -- or 46 percent of consumption -- in 1989.

This heavy dependence on oil imports is harmful to the nation. It threatens U.S. energy security and increases the risk of a return to the supply disruptions of the 1970s. It undermines the nation's economy and costs American jobs. And it contributes in a major way to the already massive U.S. trade deficit. Oil imports during 1989 cost the United States more than $49 billion, about 40 percent of the total trade deficit.

Recent data indicate that the decline in domestic oil production will continue. Not only did U.S. crude oil production fall last year by a record amount -- over one-half million barrels per day -- as production in Alaska as well as the lower-48 states dropped, but drilling activity, which is an advance indicator of production, also declined markedly.

Both private organizations and government agencies, including the U.S. Department of Energy, expect lower domestic oil production, greater U.S. oil consumption, and increased imports over the longer run. Thus, if present trends continue, the United States probably will be continuously importing well over half of its oil in a few years and perhaps as much as two-thirds of its oil by the year 2000. The exact import level will depend heavily on future oil prices, but it will also depend on how U.S. energy policies affect domestic production.

If these energy trends are to be reversed, the United States has no alternative but to produce more domestic oil and gas and thereby reduce its dependence on oil imports. But increasing domestic production will be difficult if vast areas of the federal OCS remain off-limits to exploration and development because of leasing moratoria.

Conclusion

We are no longer finding the oil and natural gas we must have if we are to replace the reserves we are consuming. The gap between production and consumption is widening, and oil imports are reaching record levels.

We urge you to put an end to these harmful and unnecessary OCS leasing moratoria and permit the nation to draw upon the potentially vast petroleum resources of the federal OCS. The national interest requires that this critically important effort proceed without further impediment or delay.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESS

VIVIAN NEWMAN, CHAIRMAN, NATIONAL COASTAL COMMITTEE, THE SIERRA CLUB

Mr. ATKINS. The Sierra Club, Vivian Newman?

Do you have a statement?

Ms. NEWMAN. Yes.

Mr. ATKINS. Go ahead.

Ms. NEWMAN. My name is Vivian Newman. I'm chairman of the national coastal committee of the Sierra Club, which is an organization with over 500,000 members. We promote the protection of the natural environment through citizen participation in public policy decisions.

The national coastal committee, I should explain, is made up of members appointed by our board of directors in order to develop club positions on coastal and OCS issues. Our combined professional expertise includes such as fields as oceanography, marine biology, and air quality. Our combined policy experience derives from many years of service on State and Federal advisory panels as well as direct legislative action. In addition, we represent all of the regions that are affected by OCS programs.

As a backdrop to what we are requesting of this subcommittee today, I want to stress that the Sierra Club is firmly united with the National Resources Defense Council and other groups in seeking long-term solutions through reforms to the legislation that governs OCS activities. Moreover, we're specifically committed to attaining permanent protection for specific areas which meet the criteria, such as high seismic activity, fragile or unstable geological structures, proximity to Federal or State marine sanctuaries or areas worthy of inclusion in such systems, and where, by reason of difficult oil spill containment or other factors, the risks are unusually high.

Regrettably, we have to come to you again this year for an interim remedy of the one-year bans on pre-lease, lease, and drilling activities off Alaska, California, Florida, North Carolina, the Mid- Atlantic and Georgia's banks. Because of space and time constraints, I have not dealt with those areas. I would refer you to the testimony presented by the NRDC for more detail on those. In our comments, I would like to concentrate on two areas, the Pacific Northwest sale 132, Oregon-Washington, and the Gulf of Mexico.

The Oregon-Washington planning area has been identified by the Sierra Club as an area where oil and gas leasing should be prohibited altogether, based on the criteria that I just mentioned. The area is ranked first among non-Alaska areas for "relative marine productivity and environmental sensitivity of the OCS planning areas calculated as the sum of scores for coastal habitat and biota." This language is from the U.S. Department of the Interior, not my language.

The entire Oregon shoreline has been designated a public recreation area since 1913 by Oregon law. The pristine Olympic National Park, the finest remnant of a Pacific Northwest rain forest and unspoiled beaches, borders over 50 percent of the Washington State shoreline. The outer Washington coast from the international border with Canada south to the vicinity of Copalis Beach is under consideration as a national marine sanctuary. North of the proposed outer coast national marine sanctuary, across the Juan de Fuca Strait, is the Pacific Rim National Park of Canada.

We have not yet reviewed the final February 1990 resolution of the Interagency Pacific Northwest OCS Task Force, but we do note that no citizen representatives were represented there. Because we recommend that the area be removed from leasing consideration, however, we believe that further pre-leasing steps should simply cease. All subsequent environmental studies of the area should be conducted separately and completely disassociated from the pre-lease process, and should be redirected, in fact, to development of protection strategies for these sensitive areas. To this end, we are requesting that this subcommittee impose a one-year ban on these pre-lease activities.

With regard to the Gulf of Mexico, the Sierra Club supports a ban on pre-lease lease and drilling activities in the Gulf of Mexico unless topographic highs and hard-bottom areas, as identified by bathymetric and biological surveys—and I've attached a map—are excluded in the stipulations of all lease tracts. Studies funded by the National Oceanic and Atmospheric Administration for the past two years have revealed the presence of hitherto unknown biological activity in these areas.

We further recommend that the Flower Garden Banks with a five-mile buffer be excluded from drilling. For nearly two decades, these living coral reefs have been under consideration for designation as a national marine sanctuary. Again, I have supplied additional information.

We ask that the Florida Middle Ground with a 30-mile buffer be excluded from drilling. This is a highly productive coral and algae reef community off the coast of northwest Florida, and it is an area of great biological activity and is fished extensively. It, too, has been evaluated as a potential marine sanctuary.

In addition to one-year bans on activities in these areas, we urge that this subcommittee require that the Minerals Management Service designate adequate funding for meeting the offshore inspection needs identified in their own report, which was released recently. Unfortunately, I have not seen this report, but I understand that it states that inspectors are faced with monitoring an increasing number of sites run by relatively inexperienced and underfinanced operators.

The report apparently calls for improved safety and environmental management programs. We submit that before expanding drilling activities in the Gulf of Mexico, these safeguards must be brought at least to the levels that are recommended by MMS itself.

In conclusion, we would like to express the Sierra Club's very deep appreciation to Chairman Yates and this subcommittee for their role in checking the excess zeal of the MMS for opening up all these areas at once. We would like to ask for yet another year of time for cool heads to examine problems.

Mr. ATKINS. Thank you very much.

Does the Sierra Club support drilling any place offshore? Are there any circumstances under which the Sierra Club would support or not oppose a drilling program?

Ms. NEWMAN. We have not opposed drilling in many areas of the Gulf of Mexico. I believe that there are other areas where we have not opposed drilling.

Mr. ATKINS. Have you established—as an organization, have you established criteria that you feel need to be met in order for drilling to proceed?

Ms. NEWMAN. We have established, instead, the criteria that I mentioned for designating areas that should be off limits. Aside from that, we haven't outlined areas for drilling.

Mr. ATKINS. And all of these areas that you have on your list, on your priority list, actually have proposed drilling?

Ms. NEWMAN. Yes. I believe, however, that the MMS has not proposed drilling in the Flower Garden Banks. They have restricted that.

Mr. ATKINS. So, if they don't have the proposal——

Ms. NEWMAN. But we're asking for a buffer.

Mr. ATKINS. But are there any drilling proposals in the buffer area?

Ms. NEWMAN. There are—yes.

Mr. ATKINS. They're active proposals——

Ms. NEWMAN. Yes.

Mr. ATKINS [continuing]. In that buffer area? Okay.

Mr. Lowery, do you have any questions?

Mr. LOWERY. How much of the coast drilling proposed do you object to?

Ms. NEWMAN. How much do we object to?

Mr. LOWERY. Yes, a percentage.

Ms. NEWMAN. Oh, I couldn't give you a percentage. Certainly—well, I would say most of the areas that are covered in NRDC's report and—well, all of the areas that are covered in their report, as well as these areas that I have outlined.

Mr. LOWERY. Quantify for me where drilling has been proposed through the five-year plan, how much of that you object to.

Ms. NEWMAN. I think I would be very unable to give you a figure.

Mr. LOWERY. Quantify for the staff and the committee for the record.

Ms. NEWMAN. All right.

Mr. ATKINS. For the record, if you could provide that, we'd appreciate it.

Ms. NEWMAN. Certainly.

Mr. ATKINS. Thank you.

[The prepared statement of Vivian Newman follows:]

SIERRA CLUB RESPONSE TO QUERY AT MARCH 8, 1990
APPROPRIATIONS SUBCOMMITTEE HEARING ON OIL/GAS MORATORIUM

FOR HEARING RECORD, SIERRA CLUB TESTIMONY OF VIVIAN NEWMAN

TOTAL ACREAGE REQUESTED BY SIERRA CLUB FOR PROTECTION FROM OFFSHORE LEASING AND DRILLING

	ACRES
California (extend northern, central, southern ban)	* 84 million
Alaska (Bristol Bay- extend 1990 ban)	
Florida (extend ban below 26 degrees)	
New England (extend ban on OCS activities on Georges Bank fishing grounds)	
Florida Middle Grounds with 30 mile buffer (ban leasing)	* 3.3 million
East & West Flower Gardens with a 3 mile buffer (ban further leasing, further exploratory drilling, development)	*0.2 million
Gulf of Mexico (prohibit sales 131 and 137 unless they stipulate survey of all blocks for hard bottoms/topographic highs, removing all blocks with this character from sale) (78 million acres surveyed for block exclusions)	______
Washington-Oregon (prohibit sale # 132)	*11.8 million
North Carolina (prohibit sale #121)	*12.8 million
Area to be protected by funding ban ***Total***	**112.1 million acres**
	(+Gulf blocks from surveys above.........tba....)

****

Comparative reference figures:

*Total areas for leasing, Gulf of Mexico	135 million acres
Total already leased	27.3 million acres
Total presently proposed for morator.	< 27.7 million acres
< (+ some added blocks after survey	
*Grand total Federal OCS areas for leasing	895.7 million acres

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Data from Shirley Taylor, Chair Sierra Club National OCS Subcommittee
1414 Hilltop Dr. Tallahassee FL 32303 904/385-7862
March 21, 1990

SIERRA CLUB

National Coastal Committee

TESTIMONY
OF THE
SIERRA CLUB
TO
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES COMMITTEE ON APPROPRIATIONS U.S. HOUSE OF REPRESENTATIVES
ON THE
DEPARTMENT OF THE INTERIOR'S OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM

MARCH 8, 1990

... To explore, enjoy, and protect the nation's waters, wetlands and shorelines ..

My name is Vivian Newman and I am testifying today on behalf of the Sierra Club, a public interest organization with over 500,000 members that promotes the protection of the natural environment through citizen participation in public policy decisions. I am Chair of the National Coastal Committee, whose members are appointed by our Board of Directors to develop Club positions on coastal and OCS issues. Our combined professional expertise includes such fields as oceanography, marine biology, and air quality, and out combined policy experience derives from many years of service on state and federal advisory panels, as well as direct legislative action. In addition, we represent all the regions affected by the OCS program.

As a backdrop to what we are requesting of this Subcommittee today, I want to stress that the Sierra Club is firmly united with the Natural Resources Defense Council and other groups in seeking long-term solutions through reforms to the legislation that governs OCS activities. Moreover, we are specifically committed to attaining permanent protection for areas that meet the following criteria: (1) high seismic activity; (2) fragile or unstable geological structures; (3) proximity to federal or state marine sanctuaries or areas worthy of inclusion in such systems, e.g. reserve or critical habitat areas; (5) where visual impact of offshore structures would significantly reduce aesthetic values; and (6) where, by reason of difficult oilspill containment, or other factors, the risks are unusually high.

Regrettably, we must come to you yet again for the interim remedy of one-year bans on pre-lease, lease, and drilling activities off Alaska, California, Florida, North Carolina, the Mid-Atlantic, and Georges Bank. Because of space and time constraints, we refer you to the testimony of the Natural Resources Defense Council for more detail on these. Our comments will concentrate on two other areas -- Lease Sale 132, Oregon-Washington, and the Gulf of Mexico.

Oregon-Washington

The Oregon-Washington OCS Planning Area has been identified by the Sierra Club as an area where oil and gas leasing should be prohibited altogether, based on the criteria listed above. The area is ranked first among non-Alaska areas for "Relative Marine Productivity and Environmental Sensitivity of the OCS Planning Areas Calculated as the Sum of Scores for Coastal Habitat and Biota" (U.S. Department of Interior, 1987). The entire Oregon shoreline has been designated a public recreation area since 1913 (Oregon Law). The pristine Olympic National Park (established 1933), a 922,062 acre scenic wilderness area, the finest remnant of the Pacific Northwest rain-forest, active glaciers and unspoiled beaches, borders over 50% of the Washington state shoreline. The Outer (Washington) Coast, from the International Border with Canada south to the vicinity of Copalist Beach is under consideration as a National Marine Sanctuary. North of the proposed Outer Coast National Marine Sanctuary, across the Juan de Fuca Strait, is the Pacific Rim National Park of Canada.

We have not yet reviewed the final February 1990 Resolution of the interagency Pacific Northwest OCS Task Force (which we note did not include citizen representatives). Because we recommend that the area be removed from leasing consideration, however, we believe that further pre-leasing steps should simply cease. All subsequent environmental studies of the area should be conducted separately, that is completely disassociated from the pre-lease process, and should be redirected to development of protection strategies for the sensitive areas. Nolle prosequi quid pro quo.

To this end, we request that this Subcommittee impose a one-year ban on these pre-lease activities.

Gulf of Mexico

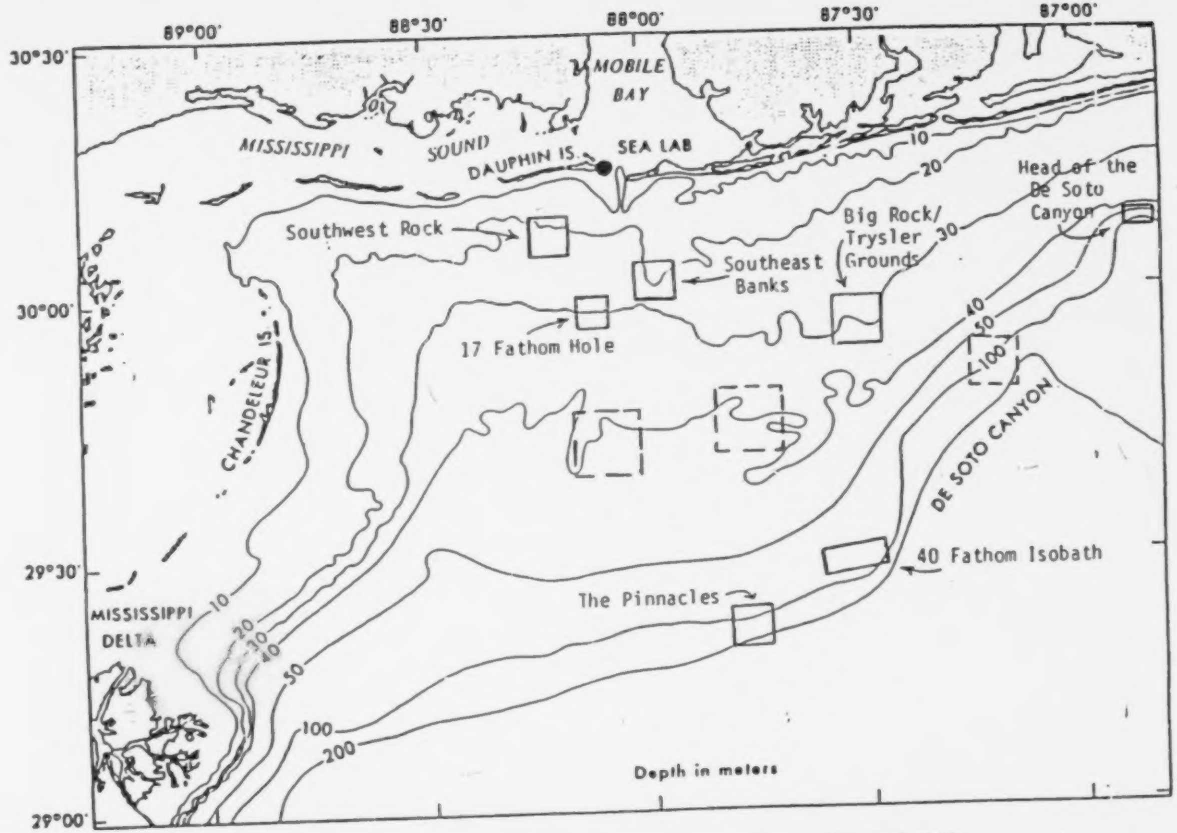
The Sierra Club supports a ban on pre-lease, lease, and drilling activities in the Gulf of Mexico unless the topographic highs and hard bottom areas, as identified by bathymetric and biological surveys (see map attached), are excluded in the stipulations of all lease tracts. Studies funded by the National Oceanic and Atmospheric Administration for the past two years have revealed the presence of hitherto unknown biological activity in these areas.

We further recommend that the Flower Garden Banks with a five-mile buffer be excluded from drilling. For nearly two decades these living coral reefs have been under consideration for designation as a National Marine Sanctuary. (See attached for information on the Sierra Club's involvement in this process)

We ask that the Florida Middle Ground with a 30-mile buffer be also excluded from drilling. This highly productive coral and algae reef community off the coast of northwest Florida is an area of great biological activity and is fished extensively. It too has been evaluated as a potential marine sanctuary site.

In addition to one-year bans on activity in these areas, we urge that this Subcommittee require that the Minerals Management Service designate adequate funding for meeting the offshore inspection needs identified in their own report released recently. This study, which we have not yet seen, reportedly states that inspectors are faced with monitoring an increasing number of sites run by relatively inexperienced and under-financed operators. The report apprently calls for improved safety and environmental management programs, including the upgrading of the offshore inspection system database, new methods, and an improved workforce. We submit that before expanding drilling activities in the Gulf, these safeguards must be brought at least to levels recommended by MMS itself.

In conclusion, we would like to express the Sierra Club's deep appreciation to Chairman Yates and this Subcommittee for their role in checking the excess zeal of MMS for opening up all OCS areas at once to oil and gas exploitation, and thus providing the critical opportunity for cooler heads to assess and avert long-term environmental costs.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MOBILE BAY
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Head of the De Soto Canyon
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Southwest Rock
Southeast Banks
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CHANDELEUR IS.
DE SOTO CANYON
40 Fathom Isobath
The Pinnacles
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Depth in meters

LOCATIONS OF HARD BOTTOMS AND TOPOGRAPHIC HIGHS OFFSHORE OF ALABAMA AND THE WEST FLORIDA PANHANDLE

SIERRA CLUB

408 C Street, N.E. Washington, D.C. 20002 202·547·1141

SELECTING AREAS FOR THE OCEAN PROTECTION ACT (H.R. 3751): THE FLOWER GARDENS

The East and West Flower Garden Coral Reef Banks are the northernmost living coral reefs along the US Outer Continental Shelf in the Gulf of Mexico. Eighteen Caribbean reef corals, 253+ species of invertebrates, and 103+ species of fishes occur there. Some species include angelfishes, parrot fishes, wrasses, triggerfishes, amberjacks, tunas, scorpionfishes, and Spanish and spiny lobsters.

The reefs are located 110 to 120 nautical miles south-southeast of the Galveston - Freeport area near the Texas - Louisiana coast. They rise 450 feet from the bottom of the Gulf of Mexico to within 65 feet of the water surface. Four to six life zones encircle the Flower Gardens and are related to water depth and light penetration.

In the early 1970s the Flower Gardens were considered for an underwater national park. From about 1977 to the present they have been considered for designation as a National Marine Sanctuary. The Draft Environmental Impact Statement (EIS) for the Flower Gardens National Marine Sanctuary was released in February 1989 and a public hearing was held in Houston, TX, in March 1989. The Final EIS has not been released (as of February 1990).

Active drilling has occurred around the Flower Gardens since the mid-1970s. The Flower Gardens are surrounded by active or soon-to-be-active leases. Since 1979 the Houston Group and Lone Star Chapter of the Sierra Club have been actively fighting the Environmental Protection Agency (EPA) and the Department of the Interior Minerals Management Service (MMS) over lease sales and stipulations as well as over National Pollution Discharge Elimination System (NPDES) permits.

The only two protected lease blocks in the Flower Gardens are A-398 at West Flower Gardens and A-375 at East Flower Gardens. In 1983 and 1984, the MMS, under then-Secretary of the Interior James Watt, tried to lease those two blocks also, but luck and the Texas Governor's persistence prevented their leasing. The MMS stipulations for the Flower Gardens include a 100-meter-deep isobath, no-activity (no-drilling) zone and a 4-mile zone where shunting of drilling cuttings and fluids to the bottom is required.

Because of the active oil and gas drilling, the proximity of the Flower Garden Banks to shipping lanes, and probable anchoring damage, we need to protect those banks via a buffer zone from top to bottom within which no drilling can occur. This is what the Houston Group of the Sierra Club requested at the public hearing for the Draft EIS of the Flower Garden National Marine Sanctuary. The National Oceanic and Atmospheric Administration (NOAA) has proposed no buffer zone other than the 100-meter isobath.

For additional information contact:

Brandt Mannchen, Conservation Committee, Houston Sierra Club Group,
629 Euclid, Houston, Texas 77009; 713/861-7552 (H), 713/640-4311 (O).

(or)

Shirley Taylor, Chair, National Outer Continental Shelf Subcommittee,
1414 Hilltop Drive, Tallahassee, FL 32303; 904/385-7862 (H).

"When we try to pick out anything by itself, we find it hitched to everything else in the universse." *John Muir*

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SELF

WITNESS

W.W. "BILL" HEWSTON, PRESIDENT, MEASUREMENT AND CONTROL ENGINEERING, VENTURA, CALIFORNIA; REPRESENTING THE NATIONAL OCEAN INDUSTRIES ASSOCIATION

Mr. ATKINS. Next, Bill Hewston, National Ocean Industries Association?

Mr. HEWSTON. Thank you, Mr. Chairman. I am Bill Hewston, president of Measurement and Control Engineering, a small, family-owned oil and gas service firm in Ventura. I'm here today to ask that you do not include the oil and gas leasing and drilling moratorium language in the fiscal year 1991 appropriations bill.

It was asked a moment ago about the area that is proposed as being off limits. I might submit this map to you as a map that has been put out for the Ocean Protection Act. If you'll notice, literally all the coastal areas, with the exception of Louisiana and Texas and parts of Alabama, have been listed as areas that are not desirable as far as drilling is concerned.

This marks the tenth year of this subcommittee's involvement with the offshore moratorium. It's probably an occasion for much celebration by many of the coastal communities and their elected officials. They can celebrate the virtual shutdown of this energy program in the United States, outside of the Gulf Coast and western Gulf of Mexico, and then rationalize that these annual requests should be granted for a number of reasons, including a majority of the States' congressional delegations support it.

But I draw to your attention that a recent poll taken on the coast of California, where I live, said that the voters did not support deletion of offshore oil drilling as long as it was done in an environmentally-safe manner. But it seems like every time there is an agreement that's reached or an area is taken off the sale schedule, the debate shifts to some place else, and other delays and other withdrawals are taken place: "just one more year."

An examination of the sponsors and the cosponsors of the Ocean Protection Act, as I have shown you there in a map—this bill would permanently ban leasing and drilling off of every coastal State, except those that I've shown you for the Gulf Coast.

Another reason that the committee has granted moratoriums has been congressional courtesy to the affected States' delegations. I might say, though, that the resources that are off the continental United States do not belong just to the people of the coastal areas. They belong to the people living in Illinois, Pennsylvania, Ohio, your State of Massachusetts, and the people in Oregon and Washington. I suppose when the people are willing to quit driving their cars, then perhaps we won't need some of this, but I don't think we've reached that yet.

The question is, Why does this Congress continue to oppose offshore leasing? It appears to me as though that quite often it's the case of "not in my backyard" attitude; some place else is fine, whether it be overseas and we have to import it or in another State.

Recently, I think that the Gainesville Florida Sun perhaps said it best, "not in my election year." If I might quote, they said, "It is such a cheap and easy position to take: ban drilling, period. The demand makes all concerned look like committed environmentals and requires no particular sacrifice for that honor."

We would agree with this assessment. A vote against offshore drilling has no perceived tangible cost for most Members of Congress.

Let me refer you, however, to some things that have happened in our area that are very positive, also in the Gulf of Mexico. The Gulf of Mexico supports over 90 percent of the U.S. exploration and production and constitutes one of the largest fishery biomasses in the world, and supplies over one-fourth of the total fish and shellfish harvest.

Wells have been drilled within a mile of the coral reef known as the Flower Garden Banks, and natural gas is the result, with no environmental problems.

It has been pointed out by our Senator Pete Wilson on a number of occasions that tourism is not affected in the coastal areas of California where development has taken place in the past. I might add that, regardless of what Senator Wilson says, the median price of housing in our area has certainly not gone down. As a matter of fact, we hold the dubious honor of perhaps being No. 2 or 3 in the State, depending upon which month you look at it. We're one of the few areas where offshore development can be seen.

There is no doubt in my mind that the subcommittee will pass some sort of a moratorium this year. The uncertainty is how extensive it will be. Many Members of Congress perceive the benefits of voting against drilling to outweigh the costs. Someday—and we hope real soon, not only for us, but particularly small business—small business, middle America, the minorities are the ones that are affected by this high cost of import, and they will be affected more and more.

But, for the Nation as a whole, the debate over offshore leasing will return to the facts and away from the media hysteria that we've seen in so many cases. My plea to you today is not only consider public opinion, which you are doing, the headlines and the other groups and motions, but also consider the facts and what is best for the future of our Nation. We can have both offshore energy development and protection of the environment.

Mr. ATKINS. Thank you very much.

Mr. Lowery, do you have any questions?

Mr. LOWERY. No questions.

Mr. ATKINS. Let me just say you paint a very grim picture of the way elected officials make decisions about offshore oil exploration. I have to say that in my experience in this committee, and as one who has struggled with the question of Georgia's banks, exploration off of our coast in Massachusetts, and one who has never supported something which would just be an outright ban on drilling on Georgia's banks, but rather a proposal which I consider to be a rational approach to that, I find your testimony a little bit disconcerting because it appears to me that you add fuel to just the kind of emotional environment that you claim that you want to take out of this debate over drilling in the Outer Continental Shelf.

I would suggest, while I don't know whether to be happy or sad that the median price for a single family home in Ventura has risen so much, I have a sense that that probably doesn't reflect an awful lot on offshore oil drilling one way or the other.

Mr. HEWSTON. I think that's the point, Mr. Chairman—that offshore oil drilling has not hurt the price.

Mr. ATKINS. Well, I'm not sure—I've never heard anybody in this committee try to draw any relationship between housing prices and offshore drilling. I would imagine that if there was such a relationship, people would have raised it.

But the thing that would be——

Mr. HEWSTON. Well, it was raised in the OCS task force.

Mr. ATKINS. The thing that would be useful for the committee—and I think that the real issue for this committee—is whether there's a real commitment on the part of the industry to be able to operate in a safe and sound manner that imposes minimal environmental damage. I think we all recognize that there are environmental tradeoffs; that, as you point out, we have a dependence, an addiction to fossil fuels. It's necessary for our economy. As long as we have that need, they have to be provided in some fashion. The question is, What's the least environmentally damaging way to get access to those fossil fuels?

My question to you, though, would be, what the industry has done in the last year to try to decrease the environmental risks involved in offshore oil exploration and the investments that the industry has made in that. I would appreciate it—I'm not asking you to do that now, because I think it will take some period of time to collect that information, but I would appreciate it if you would collect that information and supply it for the record for the committee.

I certainly would join with you in hoping that we could have this debate as a debate that's based on reality, based on the fact that we're choosing the lesser of two evils, if you will; that whatever we do, as long as we need fossil fuels, there's going to be some damage to the environment done in the extraction and transportation of those fuels. The question is how we make those decisions.

If you could provide that information, I think that would be of an assistance to this committee——

Mr. HEWSTON. We would be very happy——

Mr. ATKINS [continuing]. In making our decision on a rational basis.

Mr. HEWSTON. We would be very happy to, and I think you'll see some very positive things.

[Material was not supplied to the subcommittee at the time of printing.]

Mr. ATKINS. Thank you. I'd be delighted to see that.

[The prepared statement of Bill Hewston follows:]

Testimony

of

W.W. "BILL" HEWSTON

PRESIDENT

MEASUREMENT & CONTROL ENGINEERING

VENTURA, CALIFORNIA

on behalf of the

NATIONAL OCEAN INDUSTRIES ASSOCIATION

and the

CALIFORNIA ENERGY SERIVCE AND SUPPLY ASSOCIATION
INTERNATIONAL ASSOCIATION OF DRILLING CONTRACTORS
INTERNATIONAL ASSOCIATION OF GEOPHYSICAL CONTRACTORS
OFFSHORE MARINE SERVICE ASSOCIATION
PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION

before the

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

COMMITTEE ON APPROPRIATIONS

United States House of Representatives

Washington, D.C.

Thursday, March 8, 1990

Chairman Yates and members of the subcommittee, I am Bill Hewston, President of Measurement & Control Engineering, a small family-owned oil service firm with 35 employees located in Ventura, California. Measurement & Control Engineering conducts tests on offshore and onshore oil and gas wells to determine the amount and quality of hydrocarbons present during drilling.

Today, I am testifying on behalf of the National Ocean Industries Association (NOIA) which represents over 325 companies engaged in all aspects of offshore oil and gas exploration and development. My statement is supported by the California Energy Service and Supply Association, the International Association of Drilling Contractors, the International Association of Geophysical Contractors, the Offshore Marine Service Association, and the Petroleum Equipment Suppliers Association. I come before you today to state our vehement opposition to the inclusion of OCS oil and gas leasing and drilling moratorium language in the FY91 Interior appropriation bill.

Ten Years of Moratorium

This year marks the tenth anniversary of this subcommittee's involvement with offshore moratorium. It is probably an occasion for much celebration by many coastal communities, their elected officials, and environmental groups. They can celebrate the virtual shutdown of the offshore energy program in the United States, outside the central and western Gulf of Mexico. From what began as a one-year leasing moratorium on 700,000 acres off northern and central

California in FY82 has expanded into a 84 million acre moratorium in FY90 which not only prevents leasing, but also pre-lease sale activities and exploratory drilling on existing leases. The expanse of the current moratorium includes the entire coast of California, areas off Alaska and Florida, and much of the east coast. Its true extent actually stretches beyond this for it does not include the 655 million acres the Department of the Interior has voluntarily removed from lease sale consideration, or the self-imposed delays Interior has instituted. Today, you will undoubtedly hear pleas for additional "one-year" moratoriums, the extent of which surely will be greater than the current FY90 moratorium language.

This subcommittee has rationalized that these annual requests should be granted for a number of reasons including 1), the majority of the affected states' congressional delegation support it, and 2), one year moratoriums supposedly provide the time for DOI to reach a resolution to the issue. The moratorium has forced DOI to compromise; millions of acres have been deferred from leasing. For example, 75 percent of the California OCS is currently off limits. But, it seems every time an agreement is reached, or an area is taken off the sale schedule, the debate shifts to another area, and the same people advocate additional withdrawals and sale delays. How many "just one more year" of moratoriums, cries for additional studies, and one-sided compromises does this subcommittee need to hear to realize that the overwhelming majority of these coastal communities, their congressmen, and environmental groups don't want to compromise? They don't want any OCS leasing or drilling, period.

In the past, moratorium supporters have not admitted this as their goal. In an effort to appear rational, they have stated they were not opposed to all leasing, just in "environmentally sensitive" areas. What they didn't tell you is that according to them, virtually the entire OCS falls into this category. Now that they have been successful in temporarily halting most leasing and drilling, they are confident to publically voice their true goal: absolutely no offshore leasing.

An examination of the co-sponsors and supporters of the "Ocean Protection Act of 1990" provides evidence on this point. This bill would permanently ban leasing and drilling off every coastal state, except five, and would require the federal government to buy back existing leases in some areas. The bill's principal authors, California Representatives Barbara Boxer and Mel Levine, together with the other co-sponsors all have led the annual moratorium fight. Environmental groups supporting the bill include the Natural Resources Defense Council (NRDC), the Sierra Club, Greenpeace, and Florida PIRG; the same groups which lobby this subcommittee for one year moratoriums. On the day of the bill's introduction, the NRDC "applauded" it and called it "groundbreaking legislation." We bring this to your attention to demonstrate the fact that moratorium supporters have no intention of compromising.

Another reason this subcommittee has granted moratoriums has been out of congressional courtesy to the affected states' congressional delegations. By deferring to states' parochial interests, any sense of the national interest and the need to secure safe and dependable energy supplies has been lost. It seems that it has been forgotten that the oil and gas resources on the OCS don't belong to individual states, but to all the citizens of the nation. There is no question coastal states should have a say in the determination of what occurs off their coasts, and they do. But, through the moratoriums they have been granted virtual veto power over the federal offshore leasing program. Who is speaking for the rest of the nation? The results of a recent Cambridge Energy Research Associates national public opinion poll may surprise some. It showed that 55 percent of Americans oppose offshore drilling restrictions if they would increase oil imports.

So why do these coastal congressmen oppose offshore leasing? A prime reason is the classic "NIMBY" (not in my backyard) attitude. "Not in my election year" or "NIMEY" may be another. A recent editorial in the Gainsville Sun said it best. They described the reason for the nearly unanimous opposition to drilling by politicians this way: "it is such a cheap and easy position to take. Ban drilling. Period. The demand makes all concerned look like committed environmentalists, and it requires no particular sacrifice for that honor." We agree with this assessment, a vote against offshore drilling has no perceived tangible costs for most members of Congress. In reality there are many costs, and they are shared not only by a member's own constituents, but by the nation as a whole.

Costs of Moratorium

Some of the costs can be easily quantified, while others can't be measured today since their true ramifications won't be felt for years to come. The OCS moratorium has had a direct relationship on the rapid escalation of oil imports and its associated price tag; decreased domestic oil production; lower federal government receipts; the decimation of the domestic oil service industry; and the flight abroad of U.S. energy companies' capital expenditures.

Since enactment of the first moratorium in 1981, domestic oil production has fallen from 8.6 to 7.6 million barrels a day in 1989, the lowest level in 26 years. To make up for this drop and to meet rising demand, oil imports have increased. Since the first moratorium, our import level has risen from 36 percent of consumption to 46 percent, or an increase of 28 percent. For the month of January, oil imports rose to 54 percent, the highest monthly total ever. Last year the price tag for imported oil was $50 billion, just less than one-half of the overall trade deficit of $109 billion. Expressed on a daily basis, that is $137 million a day for imported oil. After automobiles, foreign oil is the largest component of our imports. And, the trend is getting worse. The Wall Street Journal, in a March 5, 1990 article, calculated the bill will rise to $101 billion (expressed in 1989 dollars) in the year 2,000. How many congressmen will keep these numbers in mind as they consider the moratorium issue? Will they consider the foreign policy implications as well?

There are other costs associated with the moratorium. Federal revenues generated from the OCS have fallen 70 percent since the inception of moratorium, from $10 billion in 1981 to $3 billion in 1989. Obviously, this shortfall contributes to our growing budget deficit problem. During that same time period the domestic oil service and supply industry faced a near total collapse. Admittedly, much of this can be attributed to the fall in the world price of oil. Nevertheless, our federal government should have been doing its best to establish policies which would protect this valuable U.S. industry. This is one of the few remaining industrial sectors where U.S. firms dominate virtually all the worldwide markets. These companies range from small family-owned operations to large multi-national corporations. The devastation in our industry has been catastrophic and has resulted in over 500,000 employees being laid off. For those companies that are still in business today, some stability has returned, but a large part of it is owed to the expansion of business outside of the United States.

With the opportunity to explore for oil and gas in this country becoming increasingly more limited because of such factors as moratoriums, major energy companies are choosing to spend more of their exploration dollars overseas. Ironically, we'll pay twice for this loss. Not only will these capital expenditures be made abroad, taking with it our talented personnel and technology, we will have to pay again when the oil found abroad is shipped back to this country for our consumption. These are the true costs of the moratorium.

A Rational Approach to Environmental Protection

Members of Congress who support moratorium seem willing to accept such costs because the powerful and vocal environmental community has convinced them and their constituents that offshore drilling is not compatible with a clean environment. Well, they are wrong.

America's offshore industries share in our nation's renewed commitment to a clean environment. Our environmental record clearly offers proof that this statement is just not mere words. But, there is a difference between a rational approach to environmental protection, which is based on facts, and an irrational approach, which is based on emotions. A rational approach also considers economical costs and the fact that we live in an expanding, industrial, and competitive world. Unfortunately, more often that not, decisions related to offshore drilling have been based on myths and emotions.

Tankers and Offshore Drilling

Much of this has been heightened recently by allowing critics of offshore drilling to use oil tanker accidents as a reason to stop offshore drilling. In actuality, tanker accidents present more of a reason why our nation should proceed with offshore development.

The U.S. offshore industries have an excellent safety record. Oil spills resulting from the more than 8 billion barrels of oil produced since 1954 on the OCS have been extremely rare. Since 1970, there have only been 10 spills in excess of 1,000 barrels of oil on the OCS, and none is known to have reached the shore or to have caused any significant environmental damage. Compared to oil tanker spills, if an offshore spill were to occur, it would be much smaller and more confined, therefore, much easier to clean up. To replicate the tanker spill in Prince William Sound on the OCS all the existing wells offshore California, multiplied by 33, would have to lose control at the same time to equal the amount of oil spilled in Alaska in the same amount of time. This calculation does not take into consideration the fact that 90 percent of the wells in the Pacific are on artificial lift. It should also be noted that almost all oil produced offshore comes ashore by pipeline, not tankers.

Critics of offshore leasing tend to ignore the fact that offshore drilling produces both oil and natural gas. It seems quite contradictory for people to support the additional use of natural gas as a clean burning energy source while at the same time oppose offshore drilling. Today, 29 percent of our natural gas comes from offshore fields. Many geologists believe that at least one third of our nation's remaining natural gas supplies will be found on the OCS.

Additional offshore production will actually decrease the amount of tanker traffic off America's coasts. For every barrel of oil produced domestically, one less barrel of imported oil will be transported into the country by tanker.

Coexistence with the Environment

Offshore exploration and development today coexist with the environment, not only here in the U.S., but across the world. Although a decision to proceed with offshore drilling should not be made lightly, many coastal communities broach OCS development as if it were a new and experimental phenomenon, with no track record of success. Consider some of the facts:

- The Gulf of Mexico, which supports over 90 percent of all U.S. offshore exploration and production, constitutes one of the largest fishery biomasses in the world and supplies over one-fourth of the total U.S. fish and shellfish harvest.

- Offshore structures in the Gulf support one of the largest saltwater sport fisheries, involving over 4 million fishermen.

- Wells have been drilled within one mile of a coral reef system, known as the Flower Garden Banks, located 120 miles off Galveston, Texas; natural gas is now being produced from platforms in that area without any harm to the environment. (The Florida Keys are not America's only living coral reef.)

- Tourism has flourished in Santa Barbara and Ventura counties with the presence of offshore platforms. In

Santa Barbara, tourist expenditures have risen 320 percent since 1969.

- In 1989, the median price for a single-family home in Ventura was $249,847, while in Santa Barbara it was $214,285, some of the highest prices in California and in the nation.

- Emissions associated with oil and gas operations in the OCS off Santa Barbara represent less than five percent of the inventory when it is compared with the corresponding onshore areas. In actuality, the impact is significantly less because of distance from shore and wind movement.

These are just some of the facts associated with offshore drilling. Like any other human activity, offshore drilling and development is not without any impact. But, our industry has shown that through proper stipulations and mitigations, we can minimize that impact.

Conclusion

There is little doubt that this subcommittee will pass some sort of moratorium this year, the only uncertainty is how extensive it will be. For many members of Congress the perceived benefits of voting against drilling will outweigh the costs. Someday, and we hope soon, not only for us, but for the nation, the debate over OCS leasing will return to the facts, away from the hysteria and media-hype which has surrounded this issue for the last decade.

My plea to you today is to not only consider public opinion polls, election politics, the headlines, protestors, and emotions, but also, to consider the facts and what is best for the future of our nation. We can have both offshore energy development and protection of the environment.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESSES

LISA SPEER, SENIOR STAFF SCIENTIST, NATURAL RESOURCES DEFENSE COUNCIL

Mr. ATKINS. Lisa Speer for the Natural Resources Defense Council?

Ms. SPEER. Mr. Chairman, Mr. Lowery, my name is Lisa Speer. I'm senior staff scientist with the Natural Resources Defense Council. I am here on behalf of a number of organizations. I'd like to ask that my testimony be submitted for the record.

For many years this committee has fought in a lonely battle to impose reason and balance on the extreme pro-development policies of the U.S. Department of the Interior. Against all odds, under the leadership of Chairman Yates, this committee has managed to hold off oil development in sensitive areas from Maine to Alaska. For your foresight, for your commitment, and for your persistence, I thank you on behalf of the groups that I represent today and on behalf of the millions of people whose coasts and whose jobs and ways of life you have worked so long to protect.

Mounting public and political concern has led to a number of different congressional initiatives to restrain the OCS leasing program in the last year. Initiatives introduced or contemplated include legislation to restore Federal consistency under the Coastal Zone Management Act, to strengthen the Outer Continental Shelf Lands Act, and to permanently protect large areas of the outer continental shelf from oil development.

These initiatives mean that the weight of keeping the OCS program in check will soon be lifted from this committee's shoulders, but the battle is not over yet, and we ask this committee once again to provide interim protection to important areas, so that they are not subject to more leasing and development before reform legislation can be passed.

Specifically, we ask the committee to initiate a buy-back of all existing leases in Bristol Bay, Alaska and south of 26 degrees north latitude off southern Florida, and to prohibit any drilling or further leasing in those areas pending their repurchase.

Second, we ask you to prohibit further leasing and exploration in the Beaufort, Chuckchi, and Navarin basins off Alaska and off the State of North Carolina.

Finally, we ask you to impose a one-year ban on pre-lease steps off California, the Mid-Atlantic, Georges Bank, North Carolina, Washington, and Oregon.

This is an ambitious request, but I would submit that these are extraordinary times. We are in the brink of major changes in the way the offshore oil and gas leasing program is administered in this country, and we are asking the committee essentially to maintain the status quo to allow time for this reforms to be enacted.

The rationale behind the requests we have made is discussed at length in my testimony. What I'd like to do now is just briefly touch on three issues which I think relate very strongly.

First, public attention has been riveted on the oil spills that have occurred in the recent weeks and months. That is of great concern to us with respect to offshore drilling, and particularly because the Interior Department projects that much of the oil produced on the OCS in many planning areas will be transported to shore by tanker.

But spills are not the only concern. Less dramatic but equally important are the tremendous amounts of toxic pollutants that are disposed of by the oil industry, generally without treatment, over the side of the rig. Drilling muds, for example, are discharged by the thousands of tons by drilling operations, and muds can contain significant quantities of mercury, cadmium, arsenic, and other toxic materials. Air pollution and onshore processing and storage facilities are other activities that can also have major impacts.

Second, environmentalists have been concerned for years that the information base that underlies this program is not sufficient to justify rational decisionmaking on OCS leases. Our worse fears were confirmed last November when the National Academy of Sciences issued a report that concluded, "Available scientific and technical information is inadequate and unreliable as a basis for making decisions about the environmental and socioeconomic impacts of oil and gas leasing, development, and production off California and southern Florida."

Many of the NAS's criticisms likely apply to other planning areas of the OCS. Indeed, the academy is now studying nationwide the adequacy of the information base underlying the Interior Department's program. We ask this committee to evaluate whether the entire program ought to be put on hold pending the outcome of that review.

Finally, I would just like to say a quick word about energy. Contrary to what the oil industry and the Interior Department would have us believe, the OCS is not the answer to the Nation's energy future. Indeed, the OCS outside the central and western Gulf of Mexico contains enough gas and oil to satisfy the Nation's demand only for about 11 months at current U.S. consumption rates. If this is what we are relying on to save us, we are in very big trouble.

If the real point of this debate is the threats to national energy security and the trade deficit posed by offshore oil—imported oil, excuse me—there are other strategies that are far more effective to deal with the problem. For example, if we used oil as efficiently as Japan does, we could cut our imports by 3.5 million barrels per day and save a total of $20 billion from our trade deficit each year.

The fact is that we have a finite amount of oil and we are going to run out of it sometime in the next century. We need to start work now on alternatives because that's where the future is.

Thank you, sir.

Mr. ATKINS. Thank you.

Mr. Lowery, do you have any questions?

Mr. LOWERY. No questions.

Mr. ATKINS. Could you submit for the record your analysis of the National Academy of Sciences' criticism of database that's being used by the MMS, and particularly your view as to what expenditures are necessary to provide a database for drilling decisions which you feel would be environmentally sound?

[Material was not supplied to the subcommittee at the time of printing.]

Mr. ATKINS. Does the NRDC support drilling any place in the offshore?

Ms. SPEER. That, I think, is a reasonable question to ask and let me just back up for a couple of years and tell you what we've done. Back in 1985, we supported an agreement that was reached, between members of the congressional delegation from California and the Secretary of the Interior, that would have opened up certain portions of the California coast to development. Unfortunately, the Secretary reneged on that agreement several months after it was reached.

In addition, we negotiated directly with the oil industry over leasing in the Bering Sea of Alaska. We came to an agreement whereby leasing would go forward in portions of the Bering Sea. Unfortunately, the Secretary of the Interior rejected that agreement reached between environmentalists and the oil industry.

I would like to say that we have never opposed offshore oil development in the central and western Gulf of Mexico, which accounts for the vast majority of the OCS oil in this country.

Mr. ATKINS. You didn't mention the Flower Beds that were mentioned earlier by the Sierra Club people. Do you have any position on the Flower Beds?

Ms. SPEER. We have—in fact, NRDC, before I came there in the seventies, filed suit to try to prevent the EPA from authorizing discharges that we felt would adversely affect the Flower Gardens Bank. It is an area we have very serious concerns about and support protections for that area.

We've also—I just would like to say, too, that the Gulf of Mexico has not been ignored by the environmental community, which is sometimes implied. We challenged the U.S. EPA's general permit authorizing discharges from drilling facilities throughout the Gulf of Mexico. We were successful in that challenge, and the court ordered the EPA to impose stricter discharge standards.

Mr. ATKINS. Earlier Mr. Hewston, representing the National Ocean Industries Association, indicated that there was drilling within a mile of the Flower Garden Bank and there had been no adverse environmental impact on the Flower Garden Bank. Do you agree with that assertion?

Ms. SPEER. I have not looked at recent data. I would be happy to go back and do that and provide that for the record.

Mr. ATKINS. You can provide for the record your view of the effect of that drilling on the ecology and environment of the Flower Garden Bank area.

[Material was not supplied to the subcommittee at the time of printing.]

Mr. ATKINS. Thank you very much.

Ms. SPEER. Thank you.

[The prepared statement of Lisa Speer follows:]

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TESTIMONY

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TRUSTEES FOR ALASKA
NORTH CAROLINA SIERRA CLUB
NORTH CAROLINA COASTAL FEDERATION
LEGASEA
GREENPEACE
AND
AMERICAN OCEANS CAMPAIGN

BEFORE THE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

ON THE

DEPARTMENT OF THE INTERIOR'S
OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM

March 8, 1990

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Mr. Chairman and Members of this Committee:

My name is Lisa Speer. I am Senior Staff Scientist with the Natural Resources Defense Council (NRDC), a national public interest organization dedicated to protecting and enhancing natural resources and the environment. My testimony today is on behalf of NRDC, Florida Public Interest Research Group, Friends of the Earth/Oceanic Society/ Environmental Policy Institute, Trustees for Alaska, North Carolina Sierra Club, North Carolina Coastal Federation, LegaSea, Greenpeace, and American Oceans Campaign. My testimony addresses the Department of Interior's administration of the federal Outer Continental Shelf (OCS) Program in Fiscal Year 1991.

I. INTRODUCTION

The last year has witnessed a level of controversy over the OCS program that is unmatched by any public lands issue in recent memory. As public opposition to the program escalates with each passing month, politicians of every political stripe and at every level of government are banding together to fight offshore oil development off their coasts. Despite the Department's claims of a "new and improved Minerals Management Service," public skepticism remains at an all time high. The Department of Interior (DOI), reaping the fruits of its own extreme pro-development policies of the last decade, is now administering an OCS program that has virtually no public credibility in many areas of the country. As a result, lease sale after lease sale has been cancelled, delayed, litigated, and subject to congressional moratorium.

Mounting public and political concern has led to many new Congressional initiatives to restrain the program in the last year. Initiatives introduced or contemplated include legislation to 1) restore federal consistency under the Coastal Zone Management Act; 2) strengthen the Outer Continental Shelf Lands Act; and 3) permanently protect large areas of the OCS from oil and gas development.

These initiatives mean that the weight of keeping the OCS program in check will soon be lifted from this Committee's shoulders. But the battle is not over yet. We must ask this Committee once again to provide interim protection to important areas so that they are not subject to more leasing and development before reform legislation can be passed. Specifically, we ask the Committee to:

1) initiate a buyback of all existing leases in Bristol Bay, Alaska and south of 26° N latitude off southern Florida, and to prohibit any drilling or further leasing in those areas pending repurchase;

2) extend for one year the current restrictions on OCS activities off California contained in the FY 1990 bill;

3) impose a one-year ban on further leasing, exploration and pre-lease steps off the coast of North Carolina;

4) impose a one-year ban on pre-lease steps for Sale 121 in the Mid-Atlantic;

5) extend the current prohibition on OCS activities in Georges Bank through FY 1991;

6) prohibit the conduct of pre-lease steps for Sale 132 off Washington and Oregon;

7) suspend for one year leasing and exploration in the Navarin, Chukchi and Beaufort Sea planning areas; and

8) evaluate whether the entire program should be suspended pending the upcoming release of the National Academy of Sciences' report evaluating the adequacy of MMS' ecological, physical oceanographic and socioeconomic information as a basis for decision making. This report is scheduled to be completed early next year.

For many years this Committee has fought an uphill battle to protect the nation's coastal and marine resources from the extreme pro-development policies of the Interior Department. Against all odds, this Committee under the leadership of Chairman Yates has single-handedly prevented oil development in sensitive areas from Maine to Alaska. On behalf of the organizations I represent today we extend our greatest thanks to this Committee and its outstanding Chairman.

The National Academy of Sciences' Review of Environmental Information

On November 3, 1989 a Committee of the National Research Council of the National Academy of Sciences (NAS) issued a report highly critical of the scientific data the Department of Interior has been using to make decisions about leasing in southwestern Florida, northern and southern California. The NAS Committee concluded that:

> Available scientific and technical information is inadequate and unreliable as a basis for making decisions about

the environmental and socioeconomic impacts of oil and gas leasing, development and production on the outer continental shelf (OCS) of California and southern Florida.[1]

Many of the general criticisms made in the NAS study likely apply to most areas of the OCS, and the Academy is currently involved in a larger assessment of the studies that provide the environmental information for OCS oil and gas decisions nationwide.[2] Issues related to the Academy's findings and its new report are discussed with reference to different regions of the OCS below.

II. AREAS REQUIRING PROTECTION

A. Bristol Bay

Bristol Bay is one of the most productive marine areas in the world and the single most important portion of the entire OCS for marine mammals, endangered species and fishery resources, according to the National Marine Fisheries Service. The Bristol Bay fishery generates an annual wholesale value that can exceed one billion dollars and employs an estimated 10,000 people. Bristol Bay also encompasses one of the world's great bird migration crossroads and supports at least 20 species of marine mammals including eight species of endangered whale.

All oil developed in Bristol Bay will be transported to the lower 48 by tanker, according to MMS, which also projects that there is greater than a 50% chance that one or more major oil spills will occur if Bristol Bay is developed for oil. The State of Alaska has estimated the discounted gross economic loss of a spill, based on first wholesale values, to be approximately one-half billion dollars.[3]

In the wake of the disastrous Exxon Valdez oil spill last March, the State of Alaska asked this Committee to include language in the FY 1990 appropriations bill instructing DOI to cancel the Bristol Bay leases, for which $96 million was paid in October 1988.[4] This request was strongly supported by environmental and fishing organizations. Toward this end, the final FY 1990 legislation contained language instructing the Secretary to report to the House and Senate Committees by March 1, 1991 on 1) the impacts of the Prince William Sound spill on fisheries and whether similar impacts would likely occur in Bristoi Bay; and 2) spill response and cleanup capability in Bristol Bay. Based on these two studies, the Secretary was further instructed to examine the possible repurchase of leases currently held in Bristol Bay.

NRDC strongly recommends that the Committee initiate repurchase of the Bristol Bay leases immediately rather than waiting for the Secretary to issue his report in 1991. We recommend this course of action for two primary reasons:

1) Recent statements made by the Commandant of the Coast Guard, the Secretary of Transportation, the Administrator of the U.S. Environmental Protection Agency, the Alaska Oil Spill Commission and other knowledgeable experts have clearly indicated that oil spill containment and cleanup capability is extremely limited, typically resulting in less than 15% recovery of spilled oil.[5] Only 3-4% of the oil spilled from the Exxon Valdez was recovered despite Exxon's expenditure of more than a billion dollars.[6] Further study by the Department of Interior is unlikely to change these conclusions. It is clear that an oil spill in Bristol Bay would not result in any more effective cleanup than has been witnessed in the many recent spills that have occurred over the last year.

2) An evaluation of the effects of the Prince William Sound oil spill will not shed significant new light on the long term effects of the oil spill within the time frame provided in the FY 1990 legislation (i.e., by March 1, 1991). This is because it will be many years before the full extent of the damage is known. Thus it is extremely unlikely that the Department's report required by last year's legislation will yield major new information on the long-term impacts of that spill.

Bristol Bay is one of the most important marine areas in the world for crucial biological resources. It is unquestionably the crown jewel of the nation's OCS. No new information is necessary to determine that oil gas development in this area is incompatible with the maintenance of the extraordinary resources of the region. For this reason we urge the Committee to initiate a buyback of the Bristol Bay leases without delay.

A continued moratorium on leasing and exploration within Bristol Bay is also necessary to protect the Bay pending the repurchase of the leases and final resolution of this issue.

B. The Florida Keys and Everglades

As of this writing, President Bush has not yet announced his decision with respect to leasing and drilling in the area south of 26• north latitude off southern Florida. This region, which includes the Florida Keys, the Everglades, extensive coral reefs and productive sea grass beds, is unique in the continental U.S. The President's decision will be based on the report of a Presidential Task Force charged last year with reviewing issues related to oil development in this extraordinarily sensitive area. We have several concerns regarding the Task Force's report to the President.

First, it is not clear that the Task Force or the President ever received critical testimony from the Superintendent and other officials of Everglades National Park -- testimony that was called off the day before it was to be presented to the Task Force. Obtained by NRDC under the Freedom of Information Act (FOIA), this testimony documents the Park's serious concerns about the effects of offshore oil and gas development south of 26• on the Everglades.

Moreover, other documents obtained by NRDC under FOIA indicate that the Park Service's testimony -- which stops short of opposing oil development -- did not represent the true position of Park personnel, but rather was the result of negotiation between the Park and NPS Headquarters. The true position of Everglades National Park on this issue was clearly stated in a private memo to NPS Headquarters from then-Superintendent Michael Finley:

> "We object to any oil exploration or extraction activities below the 26th parallel... The risks are simply too great; the unanswered questions too many..."

According to press reports, the Task Force got NPS' point of view from an "agency liaison" in Washington.[7] However, we question whether the President ever got the benefit of the opinion of Park professionals who are most knowledgeable about the vulnerability of the Everglades to the impacts of oil development.

Our second concern is that the Task Force report has not been made public. Therefore the public and the Congress have been denied information gathered by the Task Force that is highly relevant to the public policy debate over offshore drilling and essential for Congressional review of the President's decision.

Third, public news accounts indicate that the Task Force's report does not include permanent protection as an option for consideration by the President. We find this surprising given the support for permanent protection for the area south of 26• expressed unanimously by the entire Florida U.S. House delegation, both U.S. Senators and Governor Martinez.[8]

Finally, we understand that the Task Force report includes a number of options to delay further leasing and provide for further opportunity to study the matter. We believe that such an approach is inappropriate given the findings of the National Academy of Sciences. While the Academy concluded that ecological and socioeconomic information is inadequate to support any decision making for the area, the Academy found that the physical oceanography of the south Florida area is known with sufficient certainty to predict that oil spills off the coast would likely wash ashore on Florida's beaches.

We submit that further study will not change the physical oceanography of the region, or the fact that any spilled oil will quickly wind up on Florida's productive and fragile coastline. Further information will not alter the inevitable conclusion that the impact from offshore oil development and the threat of oil spills pose unacceptable dangers to the unique and nationally significant natural resources of the Florida Keys and Everglades. For these reasons we believe the federal government should move to repurchase the leases south of 26• and permanently protect the area from further oil development. We therefore request this Committee to initiate a buyback of the leases south of 26• and to extend the current ban on further leasing and drilling south of 26• pending final resolution of this issue.

C. California

As of this writing, the President had not yet issued his decision about the future of OCS leasing off the California coast. Offshore leasing off California has faced intense public opposition for longer than perhaps any other area of the OCS. As in Florida, politicians of all political stripes and all levels of government have come out against new offshore development.

Also like Florida, the National Academy of Sciences' review of the scientific basis for DOI's decisions on leasing, exploration and production found many deficiencies. For example, in southern California knowledge of physical oceanography is insufficient to make a leasing decision, and in both northern and southern California socioeconomic information is inadequate, according to the Academy. Although central California was not addressed by the Task Force, this area is equally sensitive to the risks of offshore oil development. The technical concerns raised by the Academy panel with respect to lease sales 91 and 95 almost certainly apply to lease sale 119 in central California as well.

The Academy's report makes it clear that the OCS program's scientific underpinnings are not sufficient to support critical decisions about OCS leasing and development in California. There is no point in allowing the pre-lease steps, especially the preparation and issuance of environmental impact statements, to proceed in the absence of basic scientific information. We therefore strongly urge the Committee to renew the ban on pre-lease steps included for all three California areas in last years' House appropriations bill.

D. North Carolina

A consortium of eight companies led by Mobil is proposing to explore leases acquired in 1981 located 47 miles northeast of Cape Hatteras off North Carolina. The State of North Carolina and others have repeatedly expressed concerns about the adequacy of environmental information supporting a decision to allow drilling to proceed. In the wake of the National Academy of Sciences' report on Florida and California, further concerns have been raised by the State and by members of the North Carolina congressional delegation with respect to the adequacy of the available scientific and technical information. As Merchant Marine and Fisheries Committee Chairman Walter Jones has noted, southwest Florida and California have undergone considerably more environmental assessment than the area that Mobil proposes to explore offshore North Carolina.[9]

Chairman Jones recently introduced legislation that would prohibit any exploration off North Carolina prior to October 1, 1991. The legislation also instructs the Secretary of the Interior to undertake ecological, socioeconomic and physical oceanographic studies, and establishes an environmental sciences review panel to evaluate the adequacy of relevant technical information for the area off North Carolina subject to the drilling proposal.

We understand that the State, Mobil and MMS are negotiating a new timeline for exploration under which drilling may commence prior to completion of the studies called for in the legislation submitted by Chairman Jones. In order to ensure that drilling and further leasing do not proceed pending the outcome of this legislation and to ensure that the information gathered under legislation proposed by Mr. Jones is incorporated into DOI's consideration of future leasing, we request this Committee to impose a one-year delay on leasing, exploration and pre-lease steps off the North Carolina coast.

E. Mid-Atlantic

Recent spills in New York Harbor involving the Exxon Corporation have illustrated the problematic nature of containing and cleaning up oil spills in the Mid-Atlantic region, even when they occur in sheltered harbors close to spill response facilities and cleanup equipment.

The coastal waters of the Mid-Atlantic region are already subjected to an enormous pollutant load. Industrial discharges, sewage sludge, urban and agricultural runoff, and combined sewer overflows all contribute very substantial amounts of pollutants to the region's waters. Fish and shellfish bed closures, hypoxic events and widespread beach closures are evidence of a system under severe stress. Additional industrial development in this region in the form of offshore oil and gas development will pose further stresses on this system.

In addition, the problems identified by the Academy with respect to the information base underlying DOI's OCS activities off California and Florida most certainly apply to the Mid-Atlantic region as well. Indeed, like North Carolina, it is likely that even less information exists about the Mid-Atlantic than either Florida or California. It makes no sense to proceed with pre-lease steps, particularly with the issuance of an environmental impact statement, until the Academy releases its assessment of MMS' environmental information base early next year. We therefore request this Committee to impose a one-year ban on pre-lease steps for lease sale 121 off the Mid-Atlantic coast.

F. Georges Bank

In its budget justification for FY 1991, MMS indicates that lease Sale 96 will not be held in FY 1991. The tremendous value of the Georges Bank fishery and the minimal hydrocarbon resources projected to underlie mean that OCS development there is unnecessary and inappropriate. We therefore ask the Committee to extend the current moratorium during FY 1991 to ensure that this area is not subject to leasing.

G. Washington/Oregon

The Pacific Northwest OCS Task Force, consisting of the states of Washington and Oregon, the Interior Department and several tribes has concluded:

> The basic scientific information needed to make OCS leasing decisions include the characterization of the environment, identification of the biological resources at risk and such scientific information is not currently available for the OCS off Oregon and Washington.

The Task Force has further recommended that all scientific and environmental studies identified by the Technical Subcommittee of the Task Force be completed and analyzed prior to the preparation of the draft environmental impact statement for Sale 132 off Washington and Oregon.[10]

The Pacific Northwest OCS Task Force does not include representatives from either Washington or Oregon coastal counties or citizen groups, among those most affected by the proposed lease sale. Moreover, to our knowledge the Secretary has not yet indicated his acceptance of the resolution, nor has MMS agreed to complete all the studies identified by the Technical Subcommittee of the Task Force prior to leasing, including an update of the geological and geophysical impact statement prepared in 1976. We therefore ask this Committee to impose a one-year ban on pre-lease steps leading up to Sale 132.

H. Beaufort, Navarin, and Chukchi Seas

In the wake of the Exxon Valdez, serious questions about the ability of the industry to contain and clean up oil spills in Alaskan waters have been raised. In addition, the National Academy of Science's conclusions about the inadequacy of the scientific information on which to base lease sale decisions apply perhaps more to the Navarin, Chukchi and Beaufort Sea planning areas than to most other regions. These areas are very poorly understood and have not been the subject of extensive studies. No further leasing or exploration should take place until oil spill containment and cleanup is shown to be effective under conditions experienced in the region, and until the Academy's national assessment of the adequacy of MMS' environmental information is released. We therefore ask this Committee to impose a one-year ban on leasing and exploration in these areas.

I. The NAS Report and the OCS Program

The National Academy of Sciences is currently involved in a larger assessment of the studies that provide the environmental information for OCS oil and gas decisions nationwide.[11] The Academy's report is due out early next year. Given the inadequacy of the information for California and Florida highlighted by the National Academy of Sciences, and given that the nationwide evaluation is expected from the Academy in the near future, we ask this Committee to consider suspending the entire OCS program pending the release of the NAS report and until major problems identified in the Report are resolved.

III. ENERGY ISSUES

The oil industry and DOI point to the nation's escalating reliance on imported oil as the primary reason to authorize drilling off the nation's coasts. Increasing dependence on imports is of great concern, but developing sensitive areas of the OCS is not the answer.

First, the OCS does not contain a major portion of the nation's oil and gas. Of 187 billion barrels of identified and undiscovered oil and gas resources identified by DOI, only about 3% are located in the OCS outside the Central and Western Gulf of Mexico.[12] Thus, even if we were to lock up the entire OCS outside the Central and Western Gulf, more than 97% of the nation's oil and gas resource base would be available.

Second, all of the oil thought by the Interior Department to underlie the entire OCS outside the Western and Central Gulf of Mexico is enough to satisfy the nation's oil demand for only eleven months.[13] The OCS is clearly not the answer to the nation's long-term energy security.

Third, the Department's arguments about the need to open sensitive OCS area on energy security grounds are unconvincing in light of other less environmentally damaging options to reduce the nation's reliance on imports that have largely been ignored by the federal government. For example, DOE has again asked Congress to fund conservation research and development at a level lower than Congress appropriated in FY 90. While DOE's funding request for renewables is up over last year's levels, it is still only about one tenth of 1980 spending levels.

Conservation savings and renewables provide major alternatives to developing oil in sensitive areas of the OCS. These options can "produce" far more oil than is contained on the Outer Continental Shelf, and do so without contributing to acid rain, smog and global warming. For example:

- Improving the efficiency of existing oil and gas furnaces and water heaters to the fullest cost-effective extent would save 4/5ths of OCS oil and gas outside the Central and Western Gulf of Mexico.[14]

- An aggressive weatherization program for America's 53 million oil and gas heated homes would save 1-1/2 times the oil believed by DOI to be in these areas.[15]

- An increase in fuel efficiency of cars to 40 miles per gallon (MPG) and of trucks to 30 MPG by the year 2008 would save almost three times the amount of oil thought by DOI to underlie these areas.[16]

As long as these options to reduce imports remain low priorities for the Administration, the public will remain skeptical about the need to drill sensitive areas for oil.

Thank you for the opportunity to testify.

FOOTNOTES

1. Press Release accompanying the National Research Council Report: The Adequacy of Environmental Information for OCS Oil and Gas Decisions: Florida and California. November 3, 1989. (Hereinafter, NAS Report)

2. NAS Report at 1.

3. Letter from Governor Steve Cowper to President George Bush dated February 27, 1989.

4. In an effort to protect Bristol Bay from oil development, the State of Alaska along with a broad coalition of fishermen, Native Alaskans, and environmental groups sought and won an injunction against OCS Lease Sale 92 in Bristol Bay originally scheduled for January 1986. That injunction remained in place until October 1988 when the injunction was lifted and 200 square miles of the Bay were leased.

5. For example, the DOI estimates average recovery at 5-15% (DOI, MMS, 1989. Draft Environmental Report on Proposed Exploratory Drilling Offshore North Carolina, at IV-34). General Accounting Office data suggests no more than 10-15% of oil lost in a major spill is ever recovered (Report of the Alaska Oil Spill Commission, February 19, 1990 at 11). The Commandant of the U.S. Coast Guard puts average recovery of spilled oil at 15-20% of the total spilled (Statement of Admiral Paul Yost, Commandant U.S. Coast Guard, Department of Transportation (DOT), before the Senate Subcommittee on Merchant Marine & Fisheries, May 10 and July 20, 1989, at 115. In a cover letter to President Bush accompanying a May 1989 report on the Exxon Valdez spill, the Administrators of EPA and DOT remarked that "oil spill cleanup procedures and technologies are primitive" (letter at 1).

6. Alaska Oil Spill Commission Report at 11.

7. St. Petersburg Times, October 4, 1989.

8. See Attachment 2, Letter from the Florida Congressional delegation to President Bush dated January 18, 1990.

9. Letter to Secretary Lujan from Hon. Walter Jones, dated December 4, 1989.

10. Resolution to the Secretary of DOI from the Pacific Northwest Outer Continental Shelf Task Force, February 12, 1990.

11. NAS Report at 1.

12. 5.5 billion barrels of oil equivalent. MMS & USGS, 1989. Estimates of Undiscovered Conventional Oil and Gas Resources in the U.S. -- A Part of the Nation's Energy Endowment.

13. Assumes a current U.S. oil consumption rate of 17 mbd demand as of January 1990.

14. 4.5 billion BOE. Watson, R., 1988. Fact Sheet on Oil and Conservation Resources. NRDC.

15. 9 billion BOE. Id.

16. 14.8 billion BOE. Id.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE—OUTER CONTINENTAL SHELF

WITNESS

GARY. PATTON, COUNTY SUPERVISOR, COUNTY OF SANTA CRUZ, CALIFORNIA

Mr. ATKINS. Gary A. Patton, County of Santa Cruz?

Mr. PATTON. Mr. Chairman and Mr. Lowery, my name is Gary Patton. I am a county supervisor in Santa Cruz County, California, which is about 80 miles south of San Francisco. I'm appearing here in three capacities, both for my board as a 16-year member of the board; as the chairperson of a six-county consortium of local governments from Sonoma County, north of San Francisco, all the way down through Monterey County, that is undertaking a locally-based study of the effects of offshore oil in our region; and, finally, as the coordinator of a statewide group of local governments, both city and county, called the California OCS Local Government Coordination Program, which has worked with this committee and Congress over about the past 10 years on OCS issues.

I have prepared testimony which I have submitted, and I would like to highlight four points from that testimony. First, thank you very much from the people of California for this committee's oversight over the Department of the Interior over the past years on OCS issues. We very, very much appreciate your willingness to try to carry out what we think the overall intention of Congress has been with respect to this very important national resource.

Second, lease sale 91 and lease sale 95, both in California, have been suspended by Presidential Order. Resale 119, which is in central California, has not. It is the part of the coast I represent directly, and you have in the past protected this area as well. It is very similar to the other parts of the California coast. We think it is even more splendid than the other parts, naturally. We would urge you again this year to renew your prohibitions on both leasing and pre-sale lease steps in the central California area as well as in the other parts of California.

Next, alluded to already before you, the National Academy of Sciences in a study connected with the Presidential Task Force report showed there were very, very significant data gaps, which really mean that decisions in this area are going to be made without adequate information on oceanographic processes involving oil transport, on ocean bottom ecology, and, very significantly, on socioeconomic impacts—a good reason for you to continue to protect our coast.

Finally, to highlight a point I made in my written testimony, there is practically daily experience now coming about all over the Nation, and certainly in our State regrettably, that shows there just is not the current capacity to contain and clean up oil spills. They are practically inevitable, apparently, when accidents occur as they do in human affairs. We abjure you, please to help us again and continue to.

I want to sum up just with one final point, and that is the legitimacy of your efforts in this area as a congressional committee dealing with an appropriations bill. The chairman alluded to that. It is a convoluted way to administer the OCS Lands Act amendments, and we realize that. We often hear from the oil industry, and sometimes from the Administration, that Congress has said, as it did in section 101, that OCS exploration was to be expedited. Indeed, you did say that; Congress did say that. But, as Mr. Harvey likes to say, remember the "rest of the story."

You also said in this act, and Congress has spoken, that the OCS is a vital national energy resource reserve. In fact, there is no appreciation of that in the Administration's policy. This is not the area, when we're shutting down other onshore production facilities, to begin opening up new frontiers, particularly when there is not that much oil there.

Congress has said that OCS resources need to managed to realize fair value for the taxpayers of this Nation. The fact is oil prices are at a near historic low. Back in 1981, the sale price was something like $6,000 an acre. These leases are being offered for $150 an acre today.

Congress has found that the OCS has nonrenewable but also renewable resources, and you need to protect those and have a balanced program. Congress is taking the action it has taken, and I hope will continue to, because the Administration has not undertaken a balanced program.

We again want to thank you for your attempt, again in a convoluted way but a necessary way, to make sure your intentions are carried out. Thank you.

Mr. ATKINS. Thank you very much.

Mr. Lowery, do you have any questions?

Mr. LOWERY. No questions.

Mr. ATKINS. Let me just point out it's our understanding, from looking through the back-up material that the Administration has submitted to us, that the central California sale 119 is not assumed in the President's budget. While in the narrative text of the budget there wasn't a postponement or a moratorium on that lease-sale, when you go into the back-up material and look at the assumed revenue, the assumed receipts, that sale is not assumed in there. You should just be aware——

Mr. PATTON. Well, I'm glad to hear that. I think that that's realistic, presumably very realistic, if you will do what we're asking you to do today. We would like to see, frankly, the President act in an upfront manner and take that off the table, because I just spent $1,000 of our taxpayers' funds flying back to speak with you for five minutes. I wouldn't have had to do that if he had sent the word a little earlier that he was not anticipating having a sale in our area this year.

Mr. ATKINS. Well, I might suggest that everything is subject to change.

Mr. PATTON. I understand that. That's why we——

Mr. ATKINS. Your caution, just to reassure your taxpayers in Santa Cruz, your caution was probably well placed, but——

Mr. PATTON. They're happy to send me back here. Again, from my taxpayers, thank you.

Mr. ATKINS. It's not over until it's over.

Mr. PATTON. I know it's not over. [Laughter.]

[The prepared statement of Gary Patton follows:]

TESTIMONY OF
SUPERVISOR GARY PATTON
COUNTY OF SANTA CRUZ, CALIFORNIA

BEFORE THE
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

ON THE
DEPARTMENT OF INTERIOR'S
OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM

MARCH 8, 1990

TESTIMONY OF
SUPERVISOR GARY PATTON
COUNTY OF SANTA CRUZ, CALIFORNIA

BEFORE THE
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

MARCH 8, 1990

I wish to extend my appreciation to Chairman Yates and the members of this Subcommittee for this opportunity to appear before you here today. My purpose here is to present the position of the Board of Supervisors of the County of Santa Cruz, and numerous other local elected officials throughout California, with respect to recurring problems with the manner in which the Department of Interior continues to administer its OCS leasing program.

Let me say at the outset that the leadership, and the foresight, of the members of this Subcommittee are greatly appreciated by the people of California and their elected officials. This Subcommittee has provided the mechanism which has enabled the Congress to ensure the continued existence of the California coastline in the largely untrammeled and unpolluted condition in which we are fortunate enough to still enjoy it today. Further, this Subcommittee has enabled the key economic sectors in our communities, which depend upon coastal tourism and commercial fishing, to survive and prosper. As Americans have awakened, in the past year, to the dire threat which petroleum operations pose to the marine environment, the actions of this Subcommittee have taken on new urgency and new importance. The inability of the present oilspill response capability to successfully deal with even relatively minor spills has made it readily apparent that the protection which you have provided to the national treasures on our coast is essential and must continue.

The almost overwhelming frequency of oilspills during this past year serves as a graphic reminder that, even under the most favorable of meteorological conditions, the best available spill recovery and cleanup technology is wholly inadequate to the task of protecting sensitive shorelines and the marine environment. In the context of Department of Interior leasing proposals which still target the entire California coastline, the present lack of oilspill cleanup technology gives us a clear message. One has only to read the Department's pre-lease planning documents for the California leasing proposals to see that expanded offshore drilling in these areas will bring us more, not fewer, nearshore tanker and barge trips, and more, not fewer, oilspills. At a time when mitigating measures such as oilspill contingency plans are revealing their inadequacy on almost a weekly basis, we must learn from the mistakes of the past or we will be doomed to repeat them - with tragic results for the California coast. And we must also learn from what we have been doing right - and this Subcommittee has clearly been pursuing a prudent policy by granting sensitive coastal areas the measure of protection which they so clearly deserve.

My message to you here today is that the protection provided by this Subcommittee to the California coastline must continue. By every indicator available to reasonable decisionmakers, the course set by this Subcommittee has been granted validity. Within the Administration, within the Congress, within the scientific community, and along our nation's coastline, new evidence has been accumulating which indicates that the protective OCS provisions contained in the Interior Appropriations bill continue to be absolutely necessary to the preservation of our marine environment. In fact, the evidence now available to all levels of government makes it apparent that this Subcommittee has been, and continues to be, entirely justified in protecting the crown jewels of America's coastline.

Specifically, we are asking that this Subcommittee renew the prohibition on leasing and pre-lease steps which was contained in the Interior Appropriations bill for fiscal year 1990. Absent any clear direction from the Administration with respect to the California OCS sales, this Subcommittee must continue to provide leadership on this matter. Protection provided through the mechanism of the Interior Appropriations process is needed to ensure equal treatment for all three California planning areas.

As members of the Subcommittee are aware, President Bush, as part of his Budget Address to Congress in early 1989, indefinitely postponed both northern California Lease Sale 91 and southern California Lease Sale 95 until such time as his cabinet-level "Presidential OCS Task Force" could study the OCS issue in depth. As part of that cabinet-level study, the Presidential OCS Task Force spent over $1 million conducting several public hearings throughout California and Florida. The overwhelming theme of the massive body of testimony presented at these hearings emphasized the need for permanent protection for the coastal environment, to be accomplished in concert with adoption of a "least cost" national energy strategy emphasizing energy efficiency and conservation strategies as cheaper and more cost-effective alternatives to OCS operations in risky areas.

As part of the year-long analysis conducted by the Presidential OCS Task Force, the National Academy of Sciences, last November, issued findings to the effect that the Department of Interior does not presently have adequate scientific data to permit offshore drilling to proceed in the areas under study and ensure that the environment will be protected. I should add that, with respect to the specific study topics for which the NAS identified data gaps for northern and southern California, the central California planning area exhibits a very similar lack of scientific information. Of particular concern in this regard are the identified gaps in the studies involving oceanographic processes and their critical role in determining oilspill trajectories, the ecology of the benthic environment, and the socioeconomic implications of OCS facilities on and offshore. These data gaps, flagged by the NAS as particularly difficult problem areas for the northern and southern California planning areas, are similarly problematic with respect to central California Lease Sale 119. To permit leasing to go forward in any of the three California planning areas in the absence of adequate scientific information would be an irresponsible act on the part of the Administration, and one which I am certain that this Subcommittee would not entertain in kind.

The President, for unknown reasons, has kept the Final Report of the OCS Task Force a secret since it was submitted to the White House in January of this year. It is our understanding that the President's decision with regard to the California and Florida leasing proposals is still very fluid. By all indications, the President has not yet made up his mind. In particular, it remains unclear whether or not the President will address the equally-controversial central California Lease Sale #119 when he makes his final decision. The announcement of the outcome of Mr. Bush's decision is said to still be several weeks away. If the President does not incorporate the central California coastline in his announcement about the fate of the northern and southern California sales, or if he opts for only a short-term delay in leasing, the political repercussions in California will, without question, be severe in terms of their impact on the California gubernatorial race. Whatever the President may or may not decide to do after he has listened to the OCS Task Force, the NAS, and his contacts within the oil industry, this Subcommittee remains the primary forum for maintaining the vision, and the reality, of a pristine coastline for future generations. And that vision, I might add, is one which has no partisan affiliation among Californians.

Over the course of the last several weeks, Americans have once again seen the devastation and the economic damage which a major oilspill can cause. The Orange County spill in California reminded us once again of several important facts which have direct bearing on decisions affecting offshore drilling proposals for our coastline. First, oilspill contingency plans are not presently effective as mitigation measures, not in Prince William Sound, and not on the Orange County coastline. Second, at-sea containment and cleanup of spills is not feasible to a degree which can protect shoreline resources and the marine environment, even when the weather cooperates. Third, the increased nearshore barge and tanker traffic and marine terminal operations which the Department of Interior says will accompany new drilling in most of the California frontier OCS areas cannot be conducted without increasing the risk of spills contacting our coastline. In Orange County, due to the vagaries of wind and weather, we were, in fact, relatively lucky with regard to seabird mortality and marine mammal impacts. Our beaches were closed, and in some cases our wetlands were oiled. But in the coves and intertidal areas of Prince William Sound, the living environment was not so fortunate and the biological damage is expected to last for decades. Many portions of the Californa coast exhibit the same high degree of environmental sensitivity which characterizes Prince William Sound. We can no longer place our faith in inadequate contingency plans, undersized skimmers and containment booms, or the glib promises of the petroleum industry. Our clean coastal environment, and the economies which depend on it, are too important to place at risk.

What Californians want is the assurance that drilling will not be permitted unless and until we can be assured, beyond any reasonable doubt, that the living environment will not have to pay the tragic costs of petroleum exploitation, as it has this past year, and continues to do today, in Alaska. The Department of Interior cannot and will not presently make such assurances, nor, according to the NAS, does the Department even have adequate data to begin to justify such assurances. To increase the degree of risk to our coastline through ill-advised OCS leasing actions which will, at best, provide very limited hydrocarbon potential in the national context, represents the height of irresponsibility. We ask only that this Subcommittee, and the Congress as a whole, continue the responsible course of protecting what is irreplaceable.

Twenty years ago a runaway offshore drilling operation in the Santa Barbara Channel became the singular event which precipitated the nationwide commemoration which became known as Earth Day. As an uncontrolled release of oil continued to devastate marine life and seabird populations over the course of several weeks, 900 square miles of sea surface were covered with oilslicks and 200 miles of beaches were tarred. This year, as the twentieth anniversary of Earth Day once again brings the lessons of the Santa Barbara blowout to the forefront of national attention, let this Subcommittee renew its vigilance over America's coastline, and continue to chart the course for responsible management of the OCS Program.

Thank you.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/OFFICE OF SURFACE MINING—STATE RECLAMATION PROGRAMS

WITNESSES

MARY ANN WRIGHT, PRESIDENT, ASSOCIATION OF ABANDONED MINE LANDS PROGRAMS

GREGORY CONRAD, EXECUTIVE DIRECTOR, INTERSTATE MINING COMPACT

Mr. ATKINS. The Association of Abandoned Mine Land Programs Interstate Mining Compact, Mary Ann Wright and Gregory Conrad?

You have five minutes between you. So, if you could highlight—we have your written testimony. That will be submitted into the record in full. So if you could just highlight whatever critical areas you have, that would be appreciated.

Ms. WRIGHT. Okay. Mr. Chairman, good afternoon. I am Mary Ann Wright and I administer the abandoned mine reclamation program for the State of Utah. Today, as president of the Association of Abandoned Mine Lands Programs, I am providing testimony on behalf of our 28 State and tribal member programs. We are appreciative of the opportunity to comment on the OSM's proposed fiscal year 1991 budget. There are just a couple of areas I'd like to address briefly.

Concerning the OSM's AML budget request, an appropriation of $117 million for AML reclamation is seriously inadequate to continue work on the ground. The momentum of program effort would be critically affected by a $33 million cutback and the flow of work would be impeded.

We believe Congress would like to see continued effective functioning of the AML reclamation work. We, therefore, ask the subcommittee to consider the recommendation of the association to fund reclamation at a $200 million level for fiscal year 1991.

Concerning obligation rates, the reason that OSM cites, the sole reason that OSM cites for its $33 million reduction in the AML portion of its budget is obligation rates. When OSM first started gathering data on obligation rates, they found rates as low as 20, 30, 40, 50 percent. We all reacted in alarm to that, and we got busy spending our money. The result of our efforts is that this year OSM calculated a very respectable national average obligation rate of 78.62, but is this what OSM came before Congress with? No, it is not. They only brought the amount of the unobligated balance before Congress.

We believe that this is unfair and that the entire issue of obligation rates is counterproductive to the reclamation process. It smacks of bean counting and results in poor relations between OSM and the States and tribes.

We believe that we have our funds committed through the granting process, and we urge the subcommittee to direct OSM to abolish the tracking of obligation rates and to work with the State tribal AML programs to develop a better means of tracking the progress of reclamation grants.

Concerning the allocation formula, we urge the subcommittee to direct OSM to allocate secretarial discretionary funds by historic coal production data and to only use the national abandoned lands inventory as a planning tool in the future.

We support the OSM technical training program. It is the most positive and friendly outreach portion of OSM. So we ask the subcommittee for continued support of the OSM technical training program.

We wish for the subcommittee to know that, as program managers, we are proud of the work that we have accomplished, the hazards we have abated, and the land that we have restored. We also know the work which still lies ahead. Thus, we value the backing of Congress as we pursue further reclamation of our lands.

Thank you for listening to my comments.

Mr. CONRAD. Thank you, Mr. Chairman, members of the committee. My name is Greg Conrad. I am executive director of the Interstate Mining Compact Commission; we are a multi-state governmental agency that represents 17 States throughout the country that produce some 70 percent of our Nation's coal as well as other important non-fuel minerals. The States are represented on the compact by their governors who serve as commissioners.

My purpose here today is also to address the fiscal year 1991 budget request for the Office of Surface Mining. In particular, we are very encouraged to see that for the first time in several years OSM has proposed an amount for Title V State regulatory grants that is in line with the request of the States. The States had requested a total of $49.5 million for their projected implementation needs, and OSM has suggested an amount of $47.9 million. We are very encouraged by this and believe that these funds are necessary to allow the States to fully, adequately, and effectively enforce the State programs which they have been vested.

Skipping quickly to another issue that is currently before the States, the applicant violator system, which was addressed earlier this afternoon. This settlement agreement is a major one for the Office of Surface Mining. It will involve a host of new requirements for the rejuvenation of the AVS, many of which must be accomplished within rather restrictive time periods and all of which have major consequences, not only for OSM, but for the States as well.

OSM has budgeted a total of $2.9 million in its fiscal year 1991 budget for the implementation of this agreement. The States believe that this is a woefully inadequate amount, especially in terms of the amount required for State participation under that agreement.

During the course of the settlement negotiations, the States made their position very clear to OSM, that under the agreement as we understood and with responsibilities with which we would be faced, that 100 percent Federal funding would be required in order to meet our obligations under that agreement.

It has been suggested that there may be adequate funds in the OSM budget to already accomplish this if a 50/50 funding scenario were in place. In our view, that kind of formula would be inadequate under the time constraints with which the States and OSM are faced under this settlement agreement. We've got to move very quickly. With the budget cycles and procedures that the States are faced with, it was going to be very difficult for us to come up with the type of funding that would be necessary to meet the requirements under the AVS.

Secondly, the settlement agreement does not change the basic terms of the existing memoranda of understanding that the States have with the Office of Surface Mining for the implementation of the AVS. We see little reason to change those terms, especially where there are more extensive requirements under the new settlement agreement.

Consequently, we are seeking an amount of upwards of $4 million in both this budget and we're projecting that same need for the fiscal year 1992 budget to fund State participation under the settlement agreement. Our view is that after the first two years of work that will be necessary under the agreement, that by fiscal year 1993 we should be able to incorporate the rest of the resource impacts in our Title V grants.

I'll leave it there, and I thank you for your concern.

Mr. ATKINS. Mr. McDade?

Mr. McDADE. No questions at this time. Thank you.

Mr. ATKINS. Thank you.

I just have one question. If you assume a 100 percent Federal pickup of the cost on the settlement agreement for the AVS, what's the additional amount of money that you feel will be necessary in the budget to fund that?

Mr. CONRAD. We believe upwards of $4 million.

Mr. ATKINS. So it would be $4 million additional?

Mr. CONRAD. Right.

Mr. ATKINS. You said upwards?

Mr. CONRAD. Four million dollars.

Mr. ATKINS. I've had experience in this committee with Congressman Murtha and Congressman McDade. Is this a Pennsylvania upwards or is this——

[Laughter.]

Mr. CONRAD. We hope so.

Mr. BEVILL. Mr. Chairman, you include Alabama in that, too, don't you? [Laughter.]

Mr. ATKINS. Okay. We'll certainly do our best. As you can see, I'm surrounded by keen interest in this subject. I appreciate the good work that you folks have done, and we are delighted to see finally the settlement and to see that we're on track.

Mr. CONRAD. Thank you very much.

[The prepared statements of Mary Ann Wright and Gregory Conrad follow:]

Testimony of

Mary Ann Wright, President
Association of Abandoned Mine Lands Programs

Submitted to

U.S. House of Representatives
Committee on Appropriations
Subcommittee on Interior

March 8, 1990

Good afternoon, Mr. Chairman and members of the Subcommittee. I am Mary Ann Wright and I administer the Abandoned Mine Reclamation Program for the state of Utah. Today, as president of the Association of Abandoned Mine Land Programs, I am providing testimony on behalf of our 28 state and tribal member programs. We are appreciative of the opportunity to comment on the Office of Surface Mining Reclamation and Enforcement's proposed FY 1991 budget.

My intent is to briefly address several topics directly related to OSMRE's budget request.

AML Budget Request

First and foremost is our consideration of the OSMRE budget request for AML grants. An appropriation of $117 million for AML reclamation is seriously inadequate to continue work on the ground. The momentum of program effort would be critically affected by a $33 million reduction from the previous year's funding level. Staff cutbacks would result and the flow of work would be impeded. We believe Congress would like to see continued, effective functioning of the AML reclamation work.

The Association, at its recent meeting, unanimously passed a resolution urging this body to fund reclamation at a $200 million level. We ask the Subcommittee to consider this recommendation as it comes to you from those who know the program, who know the projects in progress and the projects in planning, and who can assure you that OSM's requested funding is not sufficient to continue this work.

Obligation Rates

OSM cites low obligation rates as its sole reason for the $33 million reduction in the AML portion of its budget request. Discussion of obligation rates for reclamation grants has been a hot topic for the last four years.

I believe AML program managers can now chronicle a history to Congress of this ignoble subject. When OSM first gathered data on the state AML programs, low rates of "obligated" funds were published, rates as low as 20 to 50%. Program managers reacted in alarm and confusion to admonishments from OSM and OMB. We busied ourselves trying to spend the money much faster than the three-year reclamation grants allow.

The result of our efforts is that this year OSM calculated a very respectable "national average" obligation rate of 78.62%. This rate was developed by the agency using flawed data at that. These flaws were pointed out in detail through written testimony to the Honorable Nick Rahall, Chairman of the Mining and Natural Resources Subcommittee. Instead of OSM making a noise about the tremendous turnaround in obligation rates, OSM changed the rules of the game. Now, this year, OSM is barking only about the **amount** of the unobligated balance.

Gentlemen, we believe that if we are to continue to talk about obligation rates that OSM should stick to one set of rules. More importantly, we believe that the entire issue of obligation rates is counterproductive to the reclamation process. It smacks of bean counting and results in poor relations between the states/tribes and OSM. This Subcommittee should understand that each reclamation project, through the granting process, is completely detailed on paper and includes NEPA clearance, certification of site eligibility, and page after page of project budgeting. Administrative grants cover personnel costs that are pledged via salaries to program staffs. If the granted program funds are not adequately planned for and committed, then I do not know what is.

We urge the Subcommittee to direct OSM to abolish the tracking of "obligation rates" and to work with the state/tribal AML programs to develop a better means of tracking the progress of reclamation grants.

Allocation Formula

The Association unanimously passed a resolution this January which urges allocation of Secretarial discretionary funds by Historic Coal Production. The statement also resolves that the National Abandoned Land Inventory should henceforth only be utilized as a planning tool and decries its use as a decision tool for funding projects.

Each state/tribe AML Program operates under an approved Reclamation Plan required by the Surface Mining Act. That program's approved AML Plan is the guidance for ranking and selection of reclamation projects. Our state/tribal programs' inventories are more complete and more accurate than the National Inventory. Additional funds should not be spent on righting this inventory in order for it to be used to allocate funds or to deny project funding.

We urge the Subcommittee to direct OSM to allocate Secretarial Discretionary funds by Historic Coal Production data and to use NALI only as a planning tool.

OSM Technical Training Program

The Association is supportive of OSM's work in this area. It is a function of OSM where positive and friendly outreach occurs. The OSM Technical Training Program provides for consistency and dialogue in the learning process among OSM, state and tribal programs.

We ask the Subcommittee for continued support of the OSM Technical Training Program and for it to be funded as proposed.

We wish for the Subcommittee to know that, as program managers, we are proud of the work we have accomplished: the hazards we have abated, the land we have restored. We also know the work which still lies ahead. Thus, we value the backing of Congress as we pursue further reclamation of our lands.

Thank you for listening to my comments.

Association of

Abandoned Mine Land Programs

ALABAMA
ALASKA
ARKANSAS
COLORADO
CROW
HOPI
ILLINOIS
INDIANA
IOWA
KANSAS
KENTUCKY
LOUISIANA
MARYLAND
MICHIGAN
MISSOURI
MONTANA
NAVAJO
NEW MEXICO
NORTH DAKOTA
OHIO
OKLAHOMA
PENNSYLVANIA
TENNESSEE
UTAH
VIRGINIA
WASHINGTON
WEST VIRGINIA
WYOMING

ASSOCIATION OF ABANDONED MINE LAND PROGRAMS

A Resolution on FY 1991 Appropriations

WHEREAS, Title IV of the Surface Mining Control and Reclamation Act of 1977 (P.L. 95-87) was enacted by Congress to protect the public health, safety, general welfare, and property from the extreme hazards and adverse effects of past coal mining including restoration of land and water; and

WHEREAS, Since the enactment of P.L. 95-87, the Secretary of the Interior has approved AML reclamation plans for 27 states/tribes entrusting them with the responsibility to protect the general public from the adverse effects of past mining; and

WHEREAS, The annual AML fee collections are approximately $220 million per year while the past annual Congressional appropriations to the Department of the Interior for abandoned mine land reclamation state/tribe reclamation grants have averaged approximately $150 million per year; and

WHEREAS, The President's FY 1991 budget request for funding states/tribe reclamation grants continues to decline.

NOW THEREFORE BE IT RESOLVED:

That in order for states/tribes to maintain AML program stability and efficient use of funds, the Association of AML Programs urges Congress to support a minimum appropriation of $200 million per year for state/tribe AML reclamation grants.

Issued this 31 day of January 1990.

ATTEST:

Mary Ann Wright, President
Association of Abandoned Mine Land Programs

Association of
Abandoned Mine Land Programs

ALABAMA
ALASKA
ARKANSAS
COLORADO
CROW
HOPI
ILLINOIS
INDIANA
IOWA
KANSAS
KENTUCKY
LOUISIANA
MARYLAND
MICHIGAN
MISSOURI
MONTANA
NAVAJO
NEW MEXICO
NORTH DAKOTA
OHIO
OKLAHOMA
PENNSYLVANIA
TENNESSEE
UTAH
VIRGINIA
WASHINGTON
WEST VIRGINIA
WYOMING

ASSOCIATION OF ABANDONED MINE LAND PROGRAMS

A Resolution on the use of the National Inventory

WHEREAS, Title IV of the Surface Mining Control and Reclamation Act of 1977 (P.L. 95-87) was enacted by Congress to protect the public health, safety, general welfare, and property from the extreme hazards and adverse effects of past coal mining including restoration of land and water; and

WHEREAS, Title IV of the P.L. 95-87 established state administered AML programs; and

WHEREAS, There exists a National Abandoned Lands Inventory administered by OSMRE that currently contains $5.8 billion in priority I and II problem areas nationwide; and

WHEREAS, OSMRE and Congress recognized that the updated inventory contained problems and additional funds were thus allocated to analyze and revise the Inventory; and

WHEREAS, The state and tribal members of the AAMLP continue to have serious concerns about the validity of criteria and methods used to analyze and revise the Inventory and its eventual use.

NOW THEREFORE, the Association of AML Programs advocate that the Inventory only be used as a planning tool and indicator of program accomplishments, and

FURTHER, The inventory should not be used as a decision tool to:

- Establish state/tribal funding allocations
- Establish minimum program funding, or
- Fund state/tribal grants as they may reflect the objectives of Title IV; and

FURTHER, The Association encourages Congress and the Administration to:

- Minimize costs for maintenance of the Inventory to the extent necessary to meet the objectives of this resolution.
- Use Historic Coal Production as the preferred method for grant allocation, and
- Recognize the state's/tribe's approved Reclamation Plans as the method for project prioritization and selection.

Issued this 31st day of January, 1990.

ATTEST:

Mary Ann Wright, President
Association of Abandoned Mine Land Programs

Interstate Mining Compact

459B Carlisle Drive
Herndon, Virginia 22070

Gregory E. Conrad, Executive Director

Phone: 703/709-8654

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GOV. BILL CLEMENTS
Texas

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Virginia

Testimony of the

Interstate Mining Compact Commission

Concerning the Fiscal Year 1991 Budget Request of the Office of Surface Mining

Presented by

Gregory E. Conrad
Executive Director
Interstate Mining Compact Commission

Before the

Subcommittee on Interior
House Appropriations Committee

March 8, 1990

My name is Gregory E. Conrad and I am executive director of the Interstate Mining Compact Commission. I appreciate the opportunity to present this statement to the subcommittee regarding the views of the Compact's member states concerning the Fiscal Year (FY) 1991 Budget Request of the Office of Surface Mining (OSM).

The Compact is comprised of 17 states that together produce some 70% of our Nation's coal as well as important non-fuel minerals and that represent the eastern, midwestern and western regions of the country. Participation in the Compact is gained through the enactment of legislation by the member states authorizing their entry into the Compact and they are represented by their respective Governors who serve as Commissioners.

The Compact's purposes are to advance the protection and restoration of land, water and other resources affected by mining through the encouragement of programs in each of the party states that will achieve comparable results in protecting, conserving and improving the usefulness of natural resources and to assist in achieving and maintaining an efficient, productive and economically viable mining industry.

I will address four primary areas of concern that are included in OSM's FY 1991 Budget Request:

- o funding of the Title V support grants to the states;
- o funding to implement the recently negotiated settlement agreement re the Applicant Violator System (AVS);
- o appropriation of moneys from the Title IV AML fund; and
- o funding for state participation in OSM-sponsored training sessions and technical programs.

Under the provisions of the Surface Mining Control and Reclamation Act of 1977 (SMCRA), primary regulatory authority for the implementation of the Act was vested in the states upon approval by the Secretary of a state regulatory program. Congress' intent in fashioning this state-lead concept was to account for the diversity in terrain, climate, and biologic, chemical, and other physical conditions in areas subject to mining operations throughout the country (Section 101(f)). In conjunction with this finding, and as one of the Act's purposes, Congress also provided for assistance to the states in developing and implementing regulatory programs to achieve the purposes and objectives of SMCRA. (Section 102(g)). More specifically, in section 705, Congress authorized the Secretary to make annual grants to the states for the purpose of assisting them in developing, administering and enforcing their regulatory programs under Title V of the Act. Such grants are not to exceed 50 per cent of the total costs incurred annually in implementing those programs.

The states have come to rely on these Title V grants as a critical portion of the funding necessary to carry out their responsibilities as primary regulators under SMCRA. Without these grants, it is unlikely that the states would be able to maintain the comprehensive, high quality regulatory programs expected under the provisions of SMCRA.

For the first time in several years, OSM has proposed an amount for Title V state regulatory grants that is in line with the requests of the states. The states had requested a total of $49,549,453 for FY 1991 based on their projected program implementation needs compared to OSM's proposed amount of $47.9 million. Although this reflects a shortfall of $1,640,000, the states are extremely encouraged that OSM has recognized the need to provide the states with increased funds to continue to administer their regulatory programs. We urge the subcommittee to approve the OSM requested amount and to restore the $1.6 million that has been cut from the states' request for FY 1991.

Should adequate funding of state programs not be restored and perpetuated, the likely consequence will be the inability of the states to continue operating their regulatory programs. In addition to the impacts on the Congressionally-contemplated scheme of primacy, this scenario would have significant federal budget repercussions as OSM would be faced with the prospect of developing and implementing federal programs in those states that were forced to give up their own programs. In this regard, it is interesting to note that even without such an undertaking, OSM's operating budget has continued to increase from year to year, even though over that same period of time the states have taken on more and more responsibility for the implementation of SMCRA. The states must be able to count on consistent, stable and continued federal funding of their programs in order to operate effectively and efficiently.

In recent weeks, a major development has occurred at OSM with the signing of a settlement agreement between the Interior Department and several environmental groups concerning the agency's beleaguered Applicant Violator System (AVS). The agreement contains a host of new requirements for the rejuvenation of the AVS, all of which must be accomplished within restrictive time periods and all of which have major consequences for OSM and the states in terms of resources and funding.

OSM has budgeted a total of $2.9 million in FY 1991 for implementation of the AVS settlement agreement. We believe this figure to be woefully inadequate - especially in terms of the amount required for state participation under the agreement.

During the course of the settlement negotiations, the states made their position on the potential agreement abundantly clear: although we were willing to support OSM in the various tasks required by the agreement, we would be unable to do so without full (100%) federal funding of our responsibilities under the agreement. We pointed out that the states had been active participants in the AVS since its inception, pursuant to Memoranda of Understanding between each of the respective states and OSM. Under the terms of those MOU's, a significant portion of the various states' participation was fully funded by federal moneys and continues to be so to this day. We see no reason why this arrangement should be adjusted given the terms of the recent settlement agreement.

First, the AVS is a federal system and the settlement agreement directly resulted from federal inadequacies and deficiencies in implementing the AVS. In fact, we believe that the AVS would have been subject to even greater criticism had the states not contributed their time, effort and talents to assist OSM in making the system operate to the degree that it did. We were not parties to the agreement, however, and thus the new requirements are solely the province of OSM under a federal implementation scheme. Any assistance or participation by the states should therefore be federally funded.

Second, the settlement agreement does not change the basic terms of the existing MOU's on AVS. The states will continue to operate in the same fashion under the MOU's. Only the degree of state output will change -- which is a direct result of the federally negotiated settlement agreement. Any increase in the amount of work required of the states should therefore be federally funded in full.

Third, to the extent the states are required to accomplish any of the provisions of the settlement agreement pursuant to the terms of their respective state programs, they certainly would not have done so using such an elaborate system as that agreed to by OSM in the settlement agreement. Nor does SMCRA require the states to do so. Thus, to the extent OSM has designed an extensive, comprehensive and complex computer system to accomplish its goals and objectives, any concomitant impacts on the states should be fully funded by the federal government.

It is the view of the states that OSM will require about $4 million in FY 1991 and in FY 1992 to fund state participation under the settlement agreement. Most of this funding will go toward implementation of the initial adjustments to the AVS required under the settlement agreement. Those adjustments are numerous and have significant ramifications for state resources. The "adjustments" include, but are not limited to, data collection and screening, verification of ownership and control information, investigation of ownership and control linkages, and permit reviews. Once completed, we believe most states should be able to absorb any additional resource impacts in their Title V grant requests for FY 1993 and beyond.

The importance of this funding issue for the states should not be overlooked or understated. Without full federal funding, the states will not negotiate or sign revised MOU's with OSM to implement the settlement agreement. To do so would be to ignore the consequences of proceeding forward with an initiative that is doomed to fail from the outset. A more detailed position statement, as presented to the Interior Department in the course of the AVS settlement negotiations, is attached to this statement for your further consideration.

The Compact states also urge the subcommittee to fully fund the Title IV program for reclamation of abandoned mine lands (AML). In this regard, we support a recent resolution adopted by the Association of Abandoned Mine Land Programs concerning funding of the AML grants program. That resolution urges Congress to appropriate those monies that are collected annually from the Nation's coal operators (some $200 million) to fund the AML program under Title IV of SMCRA. As with Title V grants, the key here is stability, certainty and consistency. It is incredibly difficult for a state to effectively manage a program such as that provided under Title IV without the ability to rely on adequate, certain and consistent funding from year to year. We therefore urge the subcommittee to restore the state AML grants to a level that will allow the states to proceed with the valuable work being accomplished under these programs and that will provide the stable and consistent funding necessary for effective management of these programs.

The Compact states also support an effective Title V research program at OSM that will allow the development of technical information and guidance on some of the complex environmental concerns facing the states and the industry in the field such as prime farmland reconstruction, postmining land use, wetlands preservation and creation, hydrologic balance, blasting impacts, highwall control and soil stability. We understand that an investment of $1.5 to $2 million for research in the FY 1991 budget will go a long way toward establishing a solid and effective program for the agency.

Finally, we support full federal funding of OSM-sponsored training programs for state personnel in terms of travel and per diem expenses. If state employees are unable to travel to the location of the training sessions, they are precluded from taking advantage of valuable opportunities to maintain and improve technical skills, update their technical expertise, and establish consistent standards among the inspection force. In this regard, we also support the Technical Information Processing System (TIPS) as a valuable training and technical assistance tool for the states. TIPS has been one of the recent major success stories at OSM and we encourage its continued funding and its full extension to all of the states.

December 5, 1989

PRIMACY STATES' POSITION ON PROPOSED SETTLEMENT AGREEMENT IN SAVE OUR CUMBERLAND MOUNTAINS, INC. V. LUJAN

Introduction

The Surface Mining Control and Reclamation Act sets out minimum criteria that must be met by states to assume exclusive jurisdiction of a regulatory program implementing the Act. Certain states have met these criteria, have assumed primacy, and are effectively implementing programs within their respective borders. Given this fact, states need to be provided the opportunity to comment on and be party to any agreements or federal program changes that have an impact on state programs.

States' Position

The states, in concept, support the draft settlement agreement negotiated by the Office of Surface Mining, Reclamation and Enforcement (OSMRE) and Save Our Cumberland Mountains (SOCM). We recognize the need to establish a nationwide applicant violator system (AVS) that will provide states with assistance in implementing section 510(c) of SMCRA. This is evidenced by the fact that states have entered into Memoranda of Understanding (MOU's) with OSMRE concerning current AVS implementation. It also must be noted, as recognized by the settlement agreement, that OSMRE and SOCM must have the states' full support to successfully implement the agreement.

Primacy states' full support can only be given under the following conditions:

- Full (100 %) federal funding must be provided to the states;
- Any changes to the existing system and new initiatives or requirements must be the subject of rulemaking. (Examples of provisions in the settlement agreement that may trigger state or federal rulemaking procedures are attached.)
- Language must be incorporated that protects the integrity of state programs and that establishes an appropriate standard of review for state action under the agreement. (Suggested language is attached.)

In the absence of these conditions being met, primacy states will be unable to support the settlement agreement or to agree to any significant revisions to existing MOU's with OSMRE to implement the new agreement. Without full federal funding, the states will not negotiate or sign MOU's to implement the agreement with OSMRE. Furthermore, if full federal funding is approved, OSMRE must recognize that individual state requirements for rulemaking must be made a part of the MOU that is negotiated.

Discussion of States' Position

Many of the primacy states, such as West Virginia, Kentucky and Pennsylvania, envision substantial costs in implementing the AVS settlement agreement. The requirements of the agreement will cause states to deal with data from various sources that will require verification, investigation and correction, specifically the inclusion of data bases under paragraph 1 of the agreement. The states will by necessity assume a tremendous workload under paragraph 1 for at least two years after the agreement is signed.

Paragraph 3 will require states to establish parallel permit review processes for ownership and control to determine eligibility to obtain permits under section 510(c). Permit application data must be verified during the permit review process as well as on-the-ground following permit issuance. In addition all links will have to be worked out before permit issuance.

As a result, accurate resource estimates on a state by state basis must be made in the course of any MOU revision and full (100%) federal funding provided to states. The current financial conditions of the states will not allow for 50% matching funds The states are simply unable to match. It is our belief that the states are being asked to implement the agreement without adequate resources.

OSMRE has for years failed to promulgate an ownership and control rule. The agency now is being challenged for perceived failure to implement the Parker Order. OSMRE seems to believe that the settlement agreement is the key to rectifying these past deficiencies. And yet the states are being asked to sign MOU's and to assist in implementing an agreement without due consideration for the necessary resources to effectively accomplish this objective.

In addition, states have in place appropriate regulations, processes and procedures to implement the existing MOU's pertaining to AVS. Any new settlement agreement must clearly recognize this fact and provide for the continuation of these existing systems. Failure to do so could seriously jeopardize a state program and place the state in an immediate non-compliance situation as outlined in paragraph 3 of the agreement.

It must be recognized that there are state specific APA requirements for rulemaking and that states must comply with these requirements. Any new procedures, checks, policies, etc. could possibly meet the requirement for rulemaking within a certain state. As such there must be a recognition that these are resource intensive and time consuming processes for the states. In addition, states cannot be expected to implement changes required by the settlement agreement until a determination of the need for rulemaking is conducted and appropriate rules promulgated, if required. All provisions of the settlement agreement must meet a stringent state by state test for full compliance with the APA before implementation. OSMRE must recognize this and defer to these state requirements. Examples of some of these areas are attached. This is equally true for some requirements of the settlement agreement that may require federal rulemaking.

Suggested Language Changes

NOTE: New, added language is underscored; language to be deleted is bracketed and interlined.

Add the following to the end of section 3.1.3:

> Where the state RA and OSM reach an impasse concerning final approval of an application, the matter shall be referred to the Deputy Director for review in accordance with the procedures at 30 CFR Sec. 842.11(b)(1)(iii).

In footnote 8, just before the provision concerning OSM's determination about the need for a rulemaking, add the following language:

> In developing these standards, OSM shall include a provision stating that for the purposes of this agreement, an action or response by a state RA in meeting its obligations under the agreement that is not arbitrary, capricious or an abuse of discretion under the state program shall be considered appropriate action by the state RA or good cause for failing to act.

At the end of section 3.3(a), add the following language:

> In developing the MOU required under this section, OSM shall include a provision stating that for the purposes of the MOU, an action or response by a state RA in meeting its obligations under the agreement or the MOU that is not arbitrary, capricious or an abuse of discretion under the state program shall be considered appropriate action by the state RA or good cause for failing to act.

Rewrite section 3.4 as follows:

> If in finally approving an application for a permitting action, a State RA fails to comply with the MOU, OSM shall take action under 30 C.F.R. Sec. 843.21 with respect to the permitting action and shall initiate appropriate enforcement action [~~under 30 C.F.R. Secs. 735.21 or 886.18 (as allowed by law) and/or 733.12(b)~~] with respect to any knowing failure to comply by the State RA. Prior to taking any of these actions, OSM shall determine first whether the state RA's alleged failure to comply is due to circumstances beyond the control of the state, e.g. it is attributable to a lack of necessary funding or other resources or to unjustified time delays by OSM in meeting

its obligations under the agreement. The applicable standard for making this determination is whether the state RA's action was arbitrary, capricious or an abuse of discretion. Where OSM and the State RA reach an impasse concerning this determination, the matter shall be referred to the Deputy Director for review in accordance with the procedures at 30 C.F.R. Sec. 842.11(b)(1)(iii).

If the parties are unwilling to strike the interlined language above, then the following proviso should be added:

. . . OSM shall take action under 30 C.F.R. Sec. 843.21 with respect to the permitting action and, upon an appropriate finding by the Director concerning widespread, programmatic deficiencies, shall initiate action under 30 C.F.R. Secs. 735.21 . . . .

Add to the end of section 10.1:

The procedures in this section shall not apply to disputes that arise between the state RA and OSM concerning any obligations under this agreement, including obligations under the MOU provided for in section 3.3.

In section 12.11, strike the following phrase:

except as otherwise provided by Federal and State law.

and add the following:

nor to resolve any disputes between OSM and the State RA's arising under the agreement or the MOU pursuant to section 10 of the agreement.

Aspects of Proposed Agreement that Will Likely Require State Rulemaking to Implement

Par. 1.3 -- "Permitting action", to the extent the term expands the definition of "permit" under state statute or regulations.

Par. 1.5, 1.6 -- Add requirements for interfacing with additional data bases not currently queried through existing AVS network.

Par. 2.5(e) -- Adds requirement to review operator records to identify ownership and control (O & C) relationships and contract mining relationships.

Par. 3.1 -- Entire permit application processing section will require rulemaking as it depends on a settled O & C standard not yet in place.

Par. 3.1.1,
Footnote 8 -- Establish new review requirements for permit applicants having no shown prior mining experience.

Par. 3.1.2 -- Amendment of O & C information identified in state permit review as "inaccurate" or "incomplete" may require rulemaking to extent settled O & C rules are not in place.

Par. 3.1.4 -- Imposes new requirements to continually investigate sufficiency of O & C information supplied in permit applications.

Par. 3.5 -- Completely ignores procedures afforded to states by Ten Day Notice rule and by 30 CFR Sec. 732.

Par. 6 -- Improvidently issued permits requirements may require rulemaking to extent settled rules are not in place.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—WEATHERIZATION

WITNESSES

ELLIOT JACOBSON, DIRECTOR, ACTION ENERGY, AND CHAIRMAN, MASSACHUSETTS ENERGY DIRECTORS' ASSOCIATION, AND THE NEW ENGLAND COMMUNITY ACTION ASSOCIATION ENERGY COMMITTEE

DENNIS NAUGHTON, EXECUTIVE DIRECTOR, COMMUNITY SERVICES CONSORTIUM, CORVALLIS, OREGON

THOMAS WOODS, DIRECTOR, COMMUNITY ACTION AGENCY, MORGAN, LAWRENCE, AND CULLMAN COUNTIES, ALABAMA

Mr. ATKINS. We're going, if there is no objection, take out of order the National Community Action Foundation: Thomas Wood, Dennis Naughton, and Elliot Jacobson.

We have written statements—if you could summarize them, briefly summarize them.

Mr. JACOBSON. I'm Elliot Jacobson. I run energy programs in Boston, Massachusetts for the community action agency. I'm chairman of the Massachusetts Energy Directors and the New England Community Action Association Energy Committee.

What we're doing here today is, first of all, to thank this subcommittee for basically saving this program over the last several years. We realize there wouldn't be a low-income energy conservation program except for this subcommittee.

But, for the first time, we're here to ask you for more money, which is something I'm sure you like to hear. What it amounts to is that, while we've been appropriated about $161 million in the past, the real amount of money that has been spent on this program has been about a half a billion dollars because of the transfers from low-income fuel assistance and because of the availability of overcharged dollars.

Those funds are just not available any more. We don't have the overcharged dollars. Because of a decreasing amount of fuel assistance appropriation, less money can be transferred to weatherization.

So, what we would like to do is ask for an increase to $200 million this year and eventually to get to $350 million over the next couple of years, so we can continue on with this work.

For example, on the cuts, in Lawrence, Massachusetts, where they had done 114 units a month, they're down to 27 units a month. This has meant the layoff of some 43 out of 56 workers on crews that were being trained in a primarily hispanic—in a program designed for hispanic people.

In Lowell, Massachusetts, a similar situation exists where they have had to lay off two of their people. They use contractors instead. In that case, the private sector is losing the money that would be invested in private companies doing the weatherization.

In fact, in the Fifth District in Massachusetts, there will be about one third as many houses weatherized this year as two years ago, representing around a $2 million loss in funds for private industry, private conservation contractors and vendors.

Another problem is that we have gone to the DPU in our State to ask for conservation money using the weatherization program as leverage. What this amounts to is that, because of the cut in programs, there will be about $2 million less in utility contributions to the low-income weatherization program. After spending years trying to get this, we'd like to see the utilities still contributing.

I guess, in summary, for my part, where I see this program is such a good program in terms of how it affects low-income people, private contractors, the environment, national security vis-a-vis imported oil—that we see this 25 percent increase to $200 million as the first step and hope that the committee can recommend that.

Thank you.

Mr. NAUGHTON. Mr. Chairman, members of the committee, my name is Dennis Naughton. I also would like to speak to you about the Department of Energy weatherization program. I'm the executive director of the Community Services Consortium which is a community action agency located in Corvallis, Oregon. I'm also the State president under the Statewide Association of Community Action Agencies.

As Elliot mentioned, we're grateful that the Department of Energy program hasn't been cut in the past years, but, as he also mentioned, petroleum violation escrow funds are also a primary and major piece of the program.

In Oregon, the State legislature has been very good about putting a significant portion, better than half of the money that comes into the State, into the weatherization activity. That money, however, is depleted as of the end of this year. In Oregon, what it means is a 55 percent reduction in the total program, which means a reduction in the number of houses from 13,000 weatherization units down to 6,000. Worse, what it means to low-income families, particularly in the Portland area, is a 17-year wait on the waiting list for services on that particular program.

In Oregon, one of the things that we have been able to do is develop, in cooperation with the local utility companies and Bonneville Power, a very cooperative program with them in which they pay up to $1,000 a unit on low-income homes, their clients' customers, if you will—they are their customers' homes that the Community Action Agency has weatherized. We have been able to leverage a significant amount of money from the local utility companies.

It took them a while to get on board. They've been very active participants in the last year or two. We would certainly hate to send a message to them that we don't want their money. It's been a very good investment. The weatherization programs are supported by every utility company in the State. I don't know of a single one in Oregon that doesn't actively support in front of the Oregon legislature that program. So, I would encourage you to give that consideration.

Again, a point that I would like to make: the elderly and handicapped in our State will bear a disproportionate load of that. We serve a larger number in proportion to the population. We serve—about 35 percent of the population that we serve are elderly and handicapped.

We feel it's a sound investment. It creates jobs in the communities because much of the work that we do is contracted out to local private businesses. It's a proven program and we encourage your support of an increase.

Thank you.

Mr. Woods. Thank you, Mr. Chairman. I'm Tom Woods from Decatur, Alabama.

First, I want to express our deep gratitude to this subcommittee and to our distinguished Congressman, Mr. Bevill, for the fact that this important program still exists at all.

The situation in Morgan, Lawrence, and Cullman Counties mirror the situation in Massachusetts and other States certainly, because in 1988 we weatherized 184 homes; this past year we were reduced down to 126. We reduced our contracting crews by a third, and we're facing two more years of uncertain and inadequate funding.

So, a significant increase in the program would be necessary for us to do the job that we need to do to meet the needs. The housing in the rural areas in the South and in the low-income areas of our cities in the South are deplorable and really need attention of this program.

I know a lot of folks up North think it does not get cold down South, but it was minus 7 degrees in Decatur, Alabama this winter, with a minus 40 degree wind chill factor, and we had a large number of elderly, handicapped residents whose homes or pipes froze because of the weather. This greatly affected them, of course, because they had to take money that they would use for food and medicine and medical care to repair the pipes; then, also, because the utility bills increased over 200 percent, to meet that cost. If we had had the money to weatherize their homes, then they would not have had this additional cost.

Probably the most deplorable conditions that we were faced with was when we were asked to come out and help weatherize a family's dwelling. We got there and we found that this elderly couple was living in a pig sty. That may be hard to believe, but they were. After a great deal of coercing, and so forth, we did get them to leave there, because we could not and would not weatherize a pig sty. We got them to move to another place and, through weatherization, get that place in a condition where they could live a little more comfortably in the adverse condition that they found themselves.

We certainly need your help and we appreciate your consideration for an increase in this program, because it is cost-effective and it is needed. We certainly would appreciate your consideration.

Mr. Atkins. Thank you very much.

Mr. Bevill?

Mr. Bevill. Thank you for taking this out of order. We appreciate this.

I would think that you Yankees would be surprised to hear that we have 7 degrees below zero weather down there in Alabama.

Mr. Atkins. I am a little bit surprised, Mr. Chairman. I'll tell you, I've never seen it in your tourist brochure. [Laughter.]

Mr. Bevill. And we're proud of the work that Tom and the gentlemen do in this weatherization because it's money well spent. It helps people you know who cannot help themselves. It's just unfortunate they didn't have enough money to even get the water lines weatherized before that hit.

I'm very supportive of their position on the $200 million that they need. Thank you so much for your kind consideration.

Mr. ATKINS. Thank you, Mr. Chairman.

Mr. Jacobson, let me congratulate the National Community Action Foundation for their nationwide search for spokespeople for this, on this subject, and getting the coincidence of hitting 100 percent of the States that have members on the subcommittee. [Laughter.]

You mentioned the utilities decreasing their participation. Could you tell me why that is?

Mr. JACOBSON. They contribute money on a per-unit basis. So, if you—for example, you do 8,000 units instead of 16,000 units, and you're getting $300 per unit from the utility company for materials and audit costs, and things like that—if you multiply 300 times the 8,000, you get a couple million dollars less the utilities are contributing toward conservation.

Mr. ATKINS. Just curious, for all three of you: one of the things that's driven this program, particularly recently, is the number of States—I think it's up to 19 now—that have under their public utility regulatory schemes a least-cost power program. Were there to be an incentive put in that least-cost power for conservation—presently it's my understanding least-cost power is strictly based on cost of production or the cost of conservation. Were you to put an incentive on conservation, and to make that a requirement for States to participate in the program, do you think that that would substantially provide additional leverage for these funds?

Mr. NAUGHTON. If I can respond—I think it might depend on what the money was required to be used for. For example, one of the things we find in rental units is that we can weatherize rental units if more than half of the units are occupied by low-income and we then only do those units.

I think that if there's just a general statement that it's dealing with conservation, and isn't specific to a particular income group, I would have some concerns about that. If it's specific to the low-income folks, who I think need it, and that's the group that we see that's most severely impacted—that's the group that's paying in my State anywhere from 50 to 70 percent of their total income for shelter—then I would be comfortable with it.

Mr. WOODS. It would be extremely difficult in our area for low-income people, if their house hasn't been weatherized and the air is coming through the windows or the window panes, coming around the doors, or there's no insulation, they cannot conserve because of their condition. That's one of the reasons we need additional funds to weatherize more homes. That would certainly help them.

Mr. JACOBSON. Yes, I think it certainly would have helped shorten the two-or-three-year process. We had to go through the DPU to get it done. But the utilities have accepted at least the philosophy that you're espousing.

One problem is that more than half our clients are oil clients, and the utility commissions in Massachusetts don't let us do a fuel-blind program like in Connecticut where you can—where utility money can go to saving oil, which I think in a larger sense makes sense, because it's all part of the same energy balance. But it would help, yes.

Mr. **Atkins**. Thank you very much.

Mr. **Jacobson**. Thank you.

Mr. **Woods**. Thank you.

Mr. **Naughton**. Thank you, Mr. Chairman.

[The prepared statements of Elliot Jacobson, Dennis Naughton and Thomas Woods follow:]

ACTION ENERGY
47 WASHINGTON ST. • GLOUCESTER, MA 01930

INTERIOR SUBCOMMITTEE TESTIMONY

March 8, 1990

Congressman Atkins and other subcommittee members, thank you for the opportunity of addressing you on the urgent need for additional appropriations for the DOE Low-Income Weatherization Program. My name is Elliott Jacobson. I am the Director of Action Energy, the Chairman of Massachusetts Energy Directors' Association and the New England Community Action Association Energy Committee. We at the local agency level realize that without the leadership of this subcommittee that there would be no low-income weatherization program at all.

The funds available to agencies providing low-income weatherization has dropped drastically because:

- The depletion of available petroleum overcharge funds that, in any case were, by court order, supposed to supplement, not supplant existing appropriations,
- The forty percent (40%) cut in LIHEAP appropriations over the past four (4) years has rendered the potential fifteen percent (15%) weatherization set aside meaningless, and
- The states are decreasingly disposed to appropriate funds for weatherization because of their fiscal constraints. For example, the annual Massachusetts four (4) million dollar state weatherization program ended June 30, 1988.

The result has been a reduction of units from 15,981 units to 8,114 units annually weatherized in Massachusetts.

On a local level, Greater Lawrence Community Action Council's monthly production shrank from 114 to 27 units. The agency used their own crews as a vocational training program, primarily serving Hispanics, teaching energy conservation installation skills to increase their job-readiness; and, have had to lay off forty-three (43) of up to fifty-six (56) employees. In addition, Lawrence now has a year waiting list of approved eligible applicants.

In Lowell, Massachusetts, Community Teamwork, Inc. (CTI) has a five (5) year waiting list at the current rate of completions. As a result of the sixty percent (60%) cut, CTI has had to lay off two (2) long-term skilled employees. In fact, in the Fifth District there will be one-third (1/3) the homes weatherized during FY '90 as there were during FY '88 with a concurrent loss of over two (2) million dollars in energy conservation orders for private-sector contractors and vendors.

Many of those that are waiting would agree with a seventy-three (73) year old women from Ipswich, Massachusetts who is a volunteer at a North Shore Nursing Home, lives alone and heats with wood:

"Then came a call that they were coming to insulate my home at no cost to me. I just couldn't believe this could happen to me. They came and did it and the three fine men were so very nice and kind. After they left I sat in a chair and kept saying I can't believe this, with tears flowing down. It was a gift . . . "

"I believe you get out of life what you put into it and today, February 23, 1990, proved that. I am so very, very thankful."

The impact of program cuts has affected private sector contractors and vendors alike. A Cape Ann weatherization contractor, Coastal Insulation, states they have had 20% less work causing the lay-off of his fully-trained insulation installers.

The contractor writes that "our major supplier, Northern Cellulose Products of Beverly, Massachusetts, closed its doors February 2, 1990 . . . now instead of buying locally, we have to buy out of state which means higher material prices."

We have just negotiated a menu of programs with the Public Utilities in Massachusetts. The fifty percent (50%) overall cut in units will mean two (2) million dollars less Utility Funds leveraged.

The Low-Income Weatherization Program, with its direct impact on national security, vis a vis, a lessening of the dependence on insecure sources of imported fuels, the environment with its positive impact on global warming and the greenhouse effect, on the private-sector energy conservation industry, and, most importantly, on the financial and physical health of the nation's most vulnerable citizenry must be put back on the front burner of the federal government's priorities. A twenty-five (25) percent increase in the DOE appropriation for FY '91 takes a small, but meaningful first step in halting the dismantling of the federal energy conservation program for the poor.

Thank you.

TESTIMONY TO THE INTERIOR SUB-COMMITTEE OF THE HOUSE APPROPRIATIONS COMMITTEE

March 8, 1990

CSC
COMMUNITY
SERVICES
CONSORTIUM

Administrative Services
Business, Employment & Training Associates
Community Resources, Coordination and Development
Energy Programs
Housing & Community Development

BENTON COUNTY
545 S.W. 2nd St.
Suite A
Corvallis, OR 97333
(503) 752-1010
LINN COUNTY
2225 Pacific Blvd. S.E.
Republic Plaza Suite 201
Albany, OR 97321
(503) 928-6335
41 W. Maple
Lebanon, OR 97355
(503) 451-1071
LINCOLN COUNTY
208 N.W. 12th St.
Newport, OR 97365
(503) 265-8577

EOE/AA

I'd like to speak to you today about the Department of Energy Weatherization Assistance Program. My name is Dennis Naughton. I am the Executive Director of the Community Services Consortium located in Corvallis, Oregon. I am also the President of the Statewide association of Community Action Agencies.

We are grateful that the DOE Energy Program has not been reduced during the past few years. The matching Weatherization funding available from other related programs for Oregon (LIHEAP and Oil Overcharge Funds) have been greatly reduced, however. Loss of these other funds, when combined with the DOE program means a 55% reduction from 1988 to 1991. Our State will be reduced from 13,000 units weatherized in 1988 to an estimated 6,000 in 1991. For a low income family placed on an agency's waiting list in the Portland area it will mean up to a 17 year wait to receive services.

More importantly, in Oregon it means a loss of corresponding local utility funding. The Bonneville Power Administration and a number of local gas and electric utility companies provide matching funds, up to $1,000 per unit on their customers weatherized by Oregon Community Action Agencies. What we need is a significant increase in the DOE programs in order to continue to leverage local utility resources, particularly given the deep reductions in other weatherization programs available.

The Elderly and Handicapped will carry a disproportionate share of the burden in Oregon. They comprise over 35% of the services to low-income people.

Weatherization is a sound investment. It creates jobs in the communities, it saves energy, it reduces the shelter costs for low income families and is a proven program that works. I encourage your support of a significant increase in funding for the Department of Energy Weatherization Program.

TESTIMONY OF TOM WOODS
DIRECTOR, COMMUNITY ACTION AGENCY
MORGAN, LAWRENCE, AND CULLMAN COUNTIES, ALABAMA

MARCH 8, 1990

Mr. Chairman,

First I want to express our deep gratitude to this sub-committee and to our distinguished congressman, Mr. Bevill, for the fact that this important program still exists at all.

Mr. Chairman, the situation in Morgan, Lawrence, and Cullman counties mirrors the situation in Massachusetts. In 1988 we weatherized 184 homes, this past year we could do only 126.

We reduced our contracted crews by a third and we are facing two years of uncertainty and inadequate funding. A significant increase in the DOE program is desperately needed.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY/CONSERVATION—OIL HEAT RESEARCH

WITNESS

JAMES McLAUGHLIN, PRESIDENT, HAWK OIL COMPANY, INC., SCRANTON, PENNSYLVANIA; REPRESENTING THE PETROLEUM MARKETERS ASSOCIATION OF AMERICA

Mr. ATKINS. Mr. James McLaughlin, Hawk Oil Company?

Mr. McDADE. Mr. Chairman, would you yield to me?

Mr. ATKINS. I'd be delighted to.

Mr. McDADE. Thank you, Mr. Chairman and my colleagues. I want to introduce the witness to the committee. Jim McLaughlin is a gentleman that I've known most of my life. He's currently president of Hawk Oil Company, which has been in the business in my community for 50 years. He serves currently as president of the Pennsylvania Petroleum Marketers Association.

I would like to remind my friends from Texas that it all started in Pennsylvania many years ago. [Laughter.]

We have a little bit of history and knew what we were doing.

Jim is also the kind of a person we all like to claim as a constituent, Mr. Chairman, because he's active in everything that goes on in my community.

I'm delighted to see you, Jim, and thank you for coming in front of the committee today.

Mr. ATKINS. We appreciate your remarks, Mr. McDade. I would have, though, in the interest of historical accuracy, to point out that it was whale oil from Massachusetts that started the whole thing off. [Laughter.]

Mr. McLAUGHLIN. I've spent some time in Massachusetts. [Laughter.]

Thank you, Congressman McDade and Mr. Chairman and members of the committee.

As the Congressman has said, I am James McLaughlin from Scranton, Pennsylvania and have been in the petroleum business for over 50 years in that area. I am here today representing the Petroleum Marketers Association of America, PMAA, a federation of 43 State and regional associations with a membership of almost 11,000 independent marketers of petroleum products, equipment, and services across the country. As the Congressman mentioned, I am president of PMAA's petroleum member association in Pennsylvania.

While 89 percent of the PMAA members are classified as small businesses by the Small Business Administration, collectively we sell over three-quarters of the home heating oil and half of the gasoline in the United States. My testimony today will focus on the need to approve an increased funding level for oil heat research and development for the fiscal year 1991.

Last year Congress directed that $1 million of the Department of Energy conservation budget be used to continue the combustion research program on oil heat equipment for fiscal year 1990. Although the program would not receive funding in the Administration's fiscal year 1991 budget proposal, PMAA is here today to describe the worthiness of the program and to list the reasons why it should be continued in fiscal year 1991 at an increased funding level of $3.8 million.

Federal oil heat research has been very beneficial to 15 million consumers of oil heat. The oil heat program, which was started in 1976 at the Brookhaven National Laboratory, is one of the most successful stories in Federal research history. For instance, with an R&D investment of less than $10 million, Brookhaven's new flame retention burner equipment will save consumers over $10 billion by the end of the next decade. Continued funding at an increased amount of $3.8 million for fiscal year 1991 will allow Brookhaven to proceed with a very modest research effort.

I would like to emphasize that none of the funding we are requesting would go directly to our trade association or our members. Rather, it would be allotted to continue to support an existing Federal oil heat research and development program.

Out of its $17.5 billion budget request for fiscal year 1991, DOE is requesting a budget of $1.7 billion for energy research and development, much of which is being spent on competing energy sources such as natural gas, electricity, nuclear, coal, and other sources of energy, and rightfully so.

However, since 18 percent of the American homes use oil heat, it is only fair that their needs for increased conservation options be protected by the allocation of $3.8 million devoted exclusively to oil heat.

Mr. Chairman, members of the committee, thank you very much for allowing PMAA to testify on behalf of the heating oil marketers and consumers today. I would be happy to respond to any questions.

Mr. ATKINS. Mr. McDade.

Mr. McDADE. Thanks, Mr. Chairman. I guess, for the record, Jim, we just ought to indicate that by any measure, any standard, this is the most cost-effective benefit ratio of any program in DOE.

Mr. McLAUGHLIN. For every dollar spent, there has been $1,000 in benefits come back to it. It's been very cost-effective.

Mr. McDADE. In the 26 years that I've been privileged to serve on this committee, I don't know of any testimony more compelling—that the conservation dollar, be it a weatherization program like we just talked about or an R&D program here, is the most effective way to decrease dependence on foreign oil, make it more efficient.

Mr. McLAUGHLIN. It fits right into the Department of Energy's program for less consumption and dependence; that's correct.

Mr. McDADE. Thank you for your testimony and taking time to be here from a busy life. We appreciate your coming down, Jim.

Mr. McLAUGHLIN. Thank you very much, Congressman.

Mr. ATKINS. Thank you. I just have one question. The understanding that we now have in the equipment and flame retention and retrofit devices, are those now standard on new burners and standard equipment that's added to anything, any equipment that's sold, or are we still having a problem with consumer acceptance of those things?

Mr. McLaughlin. I believe the consumer acceptance is there and, as new equipment is put in, this new technology is being put into place.

Mr. Atkins. It's 100 percent penetration——

Mr. McLaughlin. I can't say for sure, but by most reputable manufacturers and all, these research developments are being put in place.

Mr. Atkins. Thank you very much.

[The prepared statement of James McLaughlin follows:]

Testimony
Advocating a
DOE Conservation Research and Development Program for Home Heating Oil
Before the
Subcommittee on Interior and Related Agencies
Committee on Appropriations
House of Representatives
Washington, DC
March 8, 1990

Mr. Chairman and members of the subcommittee, my name is James McLaughlin, and I am President of Hawk Oil Company, Inc. Hawk Oil Company has been a Scranton, Pennsylvania, distributor of motor and heating fuels for over 50 years. I am here today representing the Petroleum Marketers Association of America (PMAA), a national federation of 43 state and regional trade associations representing almost 11,000 independent marketers of petroleum products, equipment and service across the country. I am also President of the Pennsylvania Petroleum Marketers Association. While eighty-nine percent of PMAA's members are classified as small businesses by the Small Business Administration (SBA), collectively we sell over three quarters of the home heating oil and half the gasoline in the United States.

This testimony will cover five points:

- Identify the R&D funding element within DOE's budget;
- Discuss the R&D benefits to consumers;
- Describe the R&D program, with a summary in the text and details attached;
- Explain the role of the federal government;
- Discuss the budget limitations and why the oil heat program is justified.

Funding Element

For FY90, Congress allocated $1,000,000 of DOE's conservation budget to continue the combustion research program on oil heat equipment. The combustion program is an element of a key activity called Technology and Consumer Products, within the Buildings and Community Systems Division, which reports to the Assistant Secretary for Conservation and Renewable Energy. In this statement, PMAA advocates continuing the program for FY91, at an increased funding level.

R&D Benefits for Consumers

Federal oil heat R&D research has been very beneficial to consumers of oil heat by providing greater options for conservation, and has benefited the nation as a whole by reducing pollutant emissions. The oil heat program that was started in 1976 at Brookhaven National Laboratory is one of the most successful stories in federal research history.

With an R&D investment of less than $10 million, Brookhaven has demonstrated, among other things, the success of the flame retention burner that has become the industry standard for new oil heating equipment. New flame retention equipment and retrofit devices for existing oil burning equipment have been estimated to save consumers over 10 billion dollars through reduced oil usage by the end of the next decade. This amounts to one of the best benefit/cost ratios ever funded by DOE.

Additional improvements that have resulted from development or demonstration activities at Brookhaven include typical energy savings of 9-10 percent for vent dampers and flue heat recovery systems used with hydronic oil boilers. Cumulative energy savings for improvements to high efficiency burners and boilers are expected to exceed another $7 billion by the year 2000.

For FY90, DOE is proceeding with a very modest research effort in five promising areas of activity: performance control studies, fuel oil atomization/combustion studies, direct venting technology development, fuel quality studies, and technology transfer activities.

Proposed R&D Program

PMAA strongly supports continuing the current research effort and believes that there are several additional projects that should be undertaken by DOE in FY91 that are equally as promising in terms of costs and benefits as the example of the flame retention burner. These projects have been identified and are described in detail in a study by Battelle Pacific Northwest Laboratory. A copy of the Battelle Study has been provided to the subcommittee staff. Briefly, a total funding level of $3.8 million is required in three areas of activity:

- First, $2.1 million for efficiency advances on equipment such as heat exchangers and venting systems.
- Second, $1.3 million for advanced combustion and control, including pulsed combustion oil heating equipment.
- Finally, $400,000 for technology transfer programs.

A description and proposed funding level for these projects are summarized on the fourth page of this statement. The estimated fuel savings for these programs was taken from the Battelle Pacific study appendix, Table A.1. Fuel savings estimates for the various program elements range between 5 percent and 32 percent. Estimated market penetration rates range from 5 to 50 percent.

Based on annual fuel oil consumption of one quadrillion BTU, these projects are expected to save consumers as much or more than the retention head burner is saving. Estimates of the cumulative savings over 20 years for each program element range from $779 million to $12.6 billion, as shown in the last column in the table. The total of all elements could save up to $39 billion.

Federal Role is Needed

Due to the non-monopoly operations of fuel oil marketers who compete freely with one another, a federal R&D role is needed for the oil heat industry, even more than for competing industries that benefit from strong federal participation in R&D. The federal R&D programs for other fuels augment the work of the Gas Research Institute and the Electric Power Research Institute, which are funded by hundreds of millions of dollars in surcharges on gas and electricity rates that are approved by federal and state regulatory authorities.

By contrast, local oil heat marketers have no exclusive sales territories and no government approval or means to impose R&D surcharges. Major oil companies, which produce and refine oil products, do not accept responsibility for any R&D activities on behalf of equipment manufacturers or any end users, including space conditioning, automobiles or airplanes.

Most manufacturers of oil heat equipment also make gas and/or electric appliances. With a relatively smaller sales potential in oil, it is understandable that equipment manufacturers commit their limited resources to the gas and electric equipment that is the focus of the government and utility research efforts.

Therefore, it is up to the federal government to provide funding for oil heat R&D, in order to maximize conservation options to the 15 million U.S. homes dependent on oil. While PMAA does not subscribe to the view that energy supplies will dry up tomorrow, it would be wise to have a strong conservation program to reduce consumer energy demand. With an investment of only $3.8 million, the federal government can strongly encourage reduced consumer demand for home heating oil by taking advantage of exceptionally high benefit/cost ratios for oil heat R&D.

Budget Limitations

PMAA is aware of the Gramm-Rudman limitations on the budget, and supports efforts to lower the deficit through reductions in federal spending. PMAA is not asking for additional budget authority. PMAA believes that the budget proposal is more than adequate for DOE to meet the needs of its various constituent publics, including oil heat.

Out of its $17.5 billion budget request for FY91, DOE is requesting a budget of $1.7 billion for energy research and development to serve the American public. Since 18 percent of American homes use oil heat, it is only fair that their needs for increased conservation options be protected by the allocation of $3.8 million to be devoted exclusively to oil heat. After all, the federal government is devoting billions of dollars to competing sources of energy such as natural gas, electricity, nuclear, coal and exotic energy forms such as solar and renewables.

PMAA believes that if DOE is going to continue any R&D programs at all, then it is only fair to the 18 percent of American taxpayers who heat with oil that oil heat get its tiny slice of the R&D budget pie. PMAA strongly urges the support of this Subcommittee for a necessary portion of DOE's total budget to continue an oil heat program with such an excellent and beneficial track record.

Thank you for allowing PMAA to testify on behalf of heating oil marketers and consumers today.

R&D Program for Oil Heat Technology

The following projects are critical to oil heating equipment research and development for FY91 to improve conservation dramatically:

		Proposed Budget ($ Thousands)
A.	Equipment Efficiency Advances	$2,100
1.	Improved Venting Systems (Direct Vent Technology Development) (400)	
2.	Advanced Heat Exchangers (750)	
3.	Oil Burner Diagnostics (550)	
4.	Fuel Quality Variation and Combustion Efficiency (400)	
B.	Advance Concepts: Combustion, Modulation and Dynamic Controls	$1,300
5.	Fuel oil atomization research to improve fuel oil combustion technologies (340)	
6.	Advanced performance control strategies for oil-fired heating equipment (380)	
7.	Advanced combustion systems research, including pulsed oil heating equipment (250)	
8.	Systems integration/development (330)	
C.	Education/Technology Transfer	$ 400
9.	Conferences/Symposia/Workshops	
10.	Accelerate the use of energy conservation options by establishing a consumer-oriented information program	
11.	Production of special documentation and technical training aids	
TOTAL FY 1991 Budget		$3,800

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/U.S. GEOLOGICAL SURVEY—MAPPING

WITNESS

JOHN M. PALATIELLO, EXECUTIVE DIRECTOR, MANAGEMENT ASSOCIATION FOR PRIVATE PHOTOGRAMMETRIC SURVEYORS

Mr. ATKINS. John Palatiello, Photogrammetric Surveyors?

Did I get your name right?

Mr. PALATIELLO. You did, Mr. Chairman. Thank you. I imagine you have a lot of names like that in your district in Massachusetts.

Mr. ATKINS. We have an awful lot of them. They've been very good to me.

Mr. PALATIELLO. Thank you, Mr. Chairman. I am John Palatiello, and I'm executive director of the Management Association for Private Photogrammetric Surveyors, MAPPS. We're a national trade association of surveying and mapping firms.

I have a detailed statement that I've submitted and I'd like to summarize——

Mr. ATKINS. That will be entered into the record.

Mr. PALATIELLO. Thank you.

I'm pleased to have this opportunity to meet with you today and present our views on the surveying and mapping programs of agencies under your jurisdiction.

Mr. Chairman, OMB estimates that the Federal Government annually spends about a billion dollars a year on surveying and mapping, but they contract for less than 6 percent of that amount. In the Interior Department alone, there are about 2,593 employees in surveying and mapping. Yet, the Department only contracts for $11.6 million a year, again less than 6 percent of the total budget appropriated by this subcommittee. Meanwhile, there are more than 6,000 surveying and mapping firms in the private sector in the U.S. capable of doing this work.

Since 1955, it has been Federal policy that the Government will not start or carry on any commercial activity that can be procured from private enterprises through ordinary business channels. Unfortunately, this policy has not been implemented by most Interior and related agencies with regard to surveying and mapping.

Federal agencies are required by law to select firms for surveying and mapping services on the basis of demonstrated competence and qualifications rather than the lowest bid. Use of this Brooks Act process, named for Congressman Jack Brooks, the author of the law, it provides agencies the assurance that they can select contractors that have the capabilities, experience, and qualifications to provide quality services at the highest standards.

The ability of the private sector has been repeatedly demonstrated by the Corps of Engineers which contracts for some 60 to 75 percent of its surveying and mapping requirements and the Bureau of Reclamation, Navy, and Air Force, which contract virtually all their requirements. These agencies have the highest praise for the quality of services they receive.

With these exceptions, however, Federal competition with private surveying and mapping firms is pervasive, and the issue is not new. As long ago as 1973 OMB had a task force on mapping, charting, geography, and surveying, and it found, and I quote, "Private cartographic contract capability is not being used sufficiently. We found this capacity to be broad and varied and capable of rendering skilled support. Its use should be encouraged in lieu of a continued in-house buildup." That wasn't David Stockman or James Watt saying that, but those were the Government's own career professionals.

Before you arrived in Congress and on this committee, Mr. Chairman, Mr. Yates back in fiscal year 1980 asked the full committee's investigative staff to look at the Cadastral Survey program of BLM and the Forest Service. That study also recommended the increased use of contractors. However, neither of these studies' recommendations have been followed nor implemented by the agencies.

Let me give you a couple of examples. BLM recently purchased 16 global positioning systems, or GPS, satellite survey receivers. They conducted no study of the cost-effectiveness of contracting for that service as opposed to buying the equipment and doing it themselves. The USGS National Mapping Division has, since 1936, had the task of providing once-over coverage of the United States with 1 to 24,000 scale topographic maps. Now, more than 50 years later, they're still not finished.

While the USGS claims that it is not a competitor with the private sector, nor in the large-scale mapping business, it has, indeed, done mapping for cities and counties at scales as large as 1 to 4,800, again while the basic 1 to 24,000 program is incomplete. That same 1 to 24,000 program was put on the back burner back in the early 1980s in order to produce a new computer mapping program for the Census Bureau. Again, no effort was made to contract either the basic topographic program or the work for Census.

In recent years, this subcommittee has provided the USGS an appropriation of about $19 million for map making, but the National Mapping Division's budget is approaching $130 million, with the difference coming from reimbursable contract work for other Federal agencies, State and local governments, and even foreign governments. This additional income, which would otherwise go to private firms, is simply unfair competition with the private sector.

In fiscal year 1989 the USGS reported performing $22 million in mapping-related work for foreign governments through AID. This Government competition, Mr. Chairman, not German or Japanese firms, is the single largest barrier to trade for U.S. mapping companies.

The Forest Service in California has awarded a sole-source, noncompetitive contract to Boston University for geographic information systems on three national forests in California. While I have no quarrel with Boston University, sir, there are truly private firms, even in Massachusetts, that could have performed this contract. Now we understand that the Forest Service is negotiating with the State of California to establish a joint service center to map State and national forests.

As you can see——

Mr. ATKINS. If I could interrupt—and my apologies, but you're over five minutes——

Mr. PALATIELLO. I'm sorry. Okay.

Mr. ATKINS. We have your testimony. It's in the record. You suggest that circular A-76 is not sufficient to provide you the opportunities for competition. Could you submit for the record why you believe that A-76 isn't sufficient and what it is that you feel would be necessary——

Mr. PALATIELLO. Okay.

Mr. ATKINS [continuing]. To enable you to compete on a least-cost basis with the USGS?

Mr. PALATIELLO. I'd be happy to do that.

[Material was not supplied to the subcommittee at the time of printing.]

Mr. PALATIELLO. Let me clarify one thing, if I may, Mr. Chairman. I think the term "insufficient" is not quite appropriate. I think the term——

Mr. ATKINS. You say it's not the most appropriate——

Mr. PALATIELLO. Not appropriate. You see, we're not trying to put them out of business. We're not trying to shut them down. With A-76, you study a function and, if the private sector is cheaper, you just move that function out. We're not saying they should do that.

Mr. ATKINS. If you could go through that in-depth for the record, I'd appreciate it——

Mr. PALATIELLO. I'd be happy to.

Mr. ATKINS [continuing]. And your recommendation as to the alternative way that this committee should look at that.

Mr. PALATIELLO. I'd be happy to do that, Mr. Chairman.

Mr. ATKINS. Thank you very much.

Mr. PALATIELLO. Thank you very much.

[The prepared statement of John Palatiello follows:]

TESTIMONY OF
JOHN M. PALATIELLO
EXECUTIVE DIRECTOR
MANAGEMENT ASSOCIATION FOR PRIVATE
PHOTOGRAMMETRIC SURVEYORS (MAPPS)
before the
HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
March 8, 1990

Mr. Chairman, members of the Subcommittee, MAPPS is pleased to have this opportunity to present our views on funding for the surveying and mapping programs of a variety of agencies under your jurisdiction, including the USGS, BLM, Forest Service, National Park Service and Fish and Wildlife Service.

While it is difficult to estimate the amount of funding involved in surveying and mapping in these agencies, the Office of Management and Budget estimates the current annual Federal expenditure at approximately $1 billion. The Interior Department has 2,593 employees in professional and technician level positions in surveying and mapping, yet contracts for only $11.6 million. A generous estimate of the amount of spending on surveying and mapping appropriated by this subcommittee which goes to contract is just 6 percent.

The Management Association for Private Photogrammetric Surveyors (MAPPS) is a national organization of private practice firms in the field of surveying and mapping. We are concerned that dozens of Federal agencies, particularly those under this subcommittee's jurisdiction, have in-house surveying and mapping capabilities that are competitive with private, for-profit, tax paying entities. Not only do these agencies perform surveying and mapping services for themselves, but they market these services to other agencies, and to state, local and foreign governments.

In the 1990 budget submitted to Congress last January, the Administration said use of the private sector "is an important management tool to raise productivity, cut costs and improve the quality of Government services" and went on to discuss the advantages, such as "efficiency, quality and innovation in the delivery of goods and services." It concluded that "specific areas where the Government could place greater reliance on private sector providers include ... map-making activities."

Since 1955 it has been government policy that

> the Federal Government will not start or carry on any commercial activity to provide a service or product for its own use if such product or service can be procured from private enterprise through ordinary business channels.

Mapping is an activity in which the government not only fails to procure from private enterprise, but agencies providing surveying and mapping services compete with private firms, stifle growth in private industry by dominating certain markets, divert needed technical personnel from private sector employment and thwart efforts by U.S. firms to export their services.

There are more than 6,000 qualified surveying and 250 mapping firms in the United States that employ more than 40,000 persons. During the past decade, private surveying and mapping firms have made a larger capital investment in plant and equipment than any other time in history. The advent of computers, electronic distance measuring instruments and satellite receivers has transformed the industry. Our study of members' capabilities found all our service member-firms now have computer or "digital" mapping capability. Agencies are required by law to select firms for surveying and mapping services on the basis of "demonstrated competence and qualifications" rather than the lowest bid. Use of the "Brooks Act" (40 U.S.C. 541 et. seq., amended in the 100th Congress by Sec. 742 of PL100-656) provides Federal agencies the assurance that contractors have the capabilities, experience and qualifications to provide quality services. Use of this quality assurance process should put to rest any concern Federal agencies might have about the ability of private surveying and mapping firms to perform to the highest standards.

The ability of the private sector to provide quality professional services at a fair and reasonable price has been repeatedly demonstrated. The U.S. Army Corps of Engineers, for example, annually contracts for 60 to 75 percent of its surveying and mapping requirements. The Corps has high praise for the quality of the services it receives from the private sector. The Bureau of Reclamation and the military services, such as the Navy and Air Force, also contract for virtually all their requirements. They, too, find the private sector highly qualified and capable of meeting their needs.

With these exceptions, the extent of Federal competition with private surveying and mapping firms is pervasive. And the issue is not new. In 1973 the Office of Management and Budget released a report of its Task Force on Mapping, Charting, Geodesy and Surveying. It found

> "private cartographic contract capability is not being used sufficiently. We found this capacity to be broad and varied and capable of rendering skilled support..." Contract capability is a viable management alternative ... Its use should be encouraged in lieu of continued in-house build-up."

You may recall Mr. Chairman that in FY 1980, this Subcommittee asked the Committee's Investigations Staff to look at the BLM and Forest Service Cadastral Survey program. That study also recommended increased use of contractors, and in its comments, the agencies concurred with that finding. However, these studies' recommendations have not been followed nor implemented by the agencies.

The Bureau of Land Management recently purchased 16 Global Positioning Satellite (GPS) receivers, while there are dozens that have been purchased by private firms all across the country. These systems cost more than $150,000. The Federal government bought this equipment at a time when private firms have already made this investment. BLM's decision to buy the GPS survey equipment was made without any study of the cost-effectiveness of contracting for the service.

The U.S. Geological Survey's (USGS) National Mapping Division has, since 1936, attempted to provide once over coverage of the United States with 1:24,000 topographic maps. More than 50 years later, they are still not finished. While the USGS claims it is not a competitor with the private sector, nor in the large scale mapping business, the agency's employees have presented papers at technical meetings on pilot projects which report on the USGS providing mapping for cities and counties at scales as large as 1:4,800, again while the 1:24,000 program is still incomplete. The 1:24,000 program was delayed years in the early 1980's when the USGS put the project on the back burner in order to produce a new computer mapping program for the Census Bureau. No effort was made to contract either their topographic requirements or their work for the Census Bureau.

In recent years, this subcommittee has provided the USGS an annual appropriation from Congress of about $90 million for map making. But the agency's National Mapping Division budget is $130 million, with the difference coming from reimbursable contract work for other Federal agencies, State and local governments, and foreign countries. This additional income, which would otherwise go to private firms, is a result of the agency's aggressive marketing effort.

The Forest Service regional office in California awarded sole-source, non-competitive contracts to Boston University to develop geographic information systems on three National Forests in California. These are services private firms are highly qualified to perform. We also understand the Forest Service is negotiating with the State of California to establish a joint mapping service center to map State and National Forests. Again, this is unfair government competition with the private sector.

For U.S. surveying and mapping firms, most of whom are small businesses, it is the Federal government agencies, not German, Japanese or other foreign firms that are the largest competitors on foreign contracts. When a foreign government approaches the USGS with a requirement for services, more often than not it fulfills that requirement with its own personnel, rather than giving a U.S. company valuable foreign experience. This practice represents a major barrier for U.S. firms attempting to export their services. In FY 1989, the USGS estimates providing $22 million in services to foreign governments through AID.

Mr. Chairman, U.S. Government agencies should act as "agents" for, rather than competitors of, U.S. firms and help open doors to U.S. firms that have heretofore been closed by our own government, using our own tax dollars.

MAPPS, and the private surveying and mapping profession, have good reason to be frustrated with competition from the government. But, I assure you our objective is not to shut down agencies, dismantle Federal capabilities or put Federal employees out on the street without jobs. Indeed, as I am sure you are aware, the current program, OMB Circular A-76, would do just that.

Circular A-76 requires agencies to identify "commercial activities" (of which surveying and mapping is clearly classified) being performed in-house, conduct detailed comparisons of the cost of performing the function in-house with government employees versus the cost of contracting to the private sector, and contract-out the function if the private sector can perform the work for less than the government. This process forces the entire function to be contracted.

We do not believe A-76 is the most appropriate way to encourage private sector participation in a professional service like surveying and mapping. We believe the government and private sector should compliment one another, not compete. There is a legitimate role for USGS, BLM and other agencies in research and development, standards setting and a limited production capability to keep current with state-of-the-art techniques and to be able to knowledgeably monitor contractor performance. But when less than 10 percent of an agency's work is contracted, that is not balance.

A balanced partnership is exactly what Representative Rahall of West Virginia, the Chairman of USGS' authorizing subcommittee, is seeking in H.R. 3639, which he introduced in November.

We have met with the agencies, both in their offices and we have invited them to meet with our members at our meetings. We have always heard that more work will be coming in the future. But tomorrow never seems to come. We have tried to work with the agencies. We wish we did not have to be here today. But we have received no cooperation.

Mr. Chairman, we would urge this Committee to require these agencies to enhance its partnership with and increase its utilization of the private sector. If not to supplement their own requirements, then certainly they should be required to use contractors when they do work for other clients in what is otherwise direct competition with the private sector.

THURSDAY, MARCH 8, 1990.

DEPARTMENTS OF ENERGY AND INTERIOR—FOSSIL ENERGY RESEARCH AND OFFSHORE EXPLORATION

WITNESS

JERRY T. VERKLER, SENIOR VICE PRESIDENT, INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA

Mr. ATKINS. Jerry Verkler, Interstate Natural Gas Association?

Mr. VERKLER. Thank you, Mr. Chairman.

Mr. ATKINS. Let me just suggest, we are running short on time.

Mr. VERKLER. I'll be as quick as I can.

Mr. ATKINS. So, the faster you are, the more receptive we will be.

Mr. VERKLER. All right. Well, I'm glad to hear that, Mr. Chairman, and I'm glad the record is——

Mr. ATKINS. Your entire statement will be in the record.

Mr. VERKLER. Okay. I'll be very brief.

I represent the interstate natural gas pipeline industry in this country. I'm a little embarrassed that we haven't been up here before, but we've been more and more concerned with the trend toward more and more moratoria on the OCS. I think I properly should have been among the witnesses who were talking about that subject.

But, Mr. Chairman, we're especially concerned because the OCS provides, and is estimated to provide, at least from 25 to 28 percent of the natural gas to be consumed in the lower 48. As we know, if some of these areas that have been under the moratoria were released for leasing today, it would take at least five years before any of the tracts could produce energy resources.

If we continue on the present course, with ever-larger portions of the offshore banned from development, we're going to place ourselves into an even more extremely vulnerable position in relation to imports. I understand fully the importance of a thorough environmental assessment of major Federal actions. When considering offshore projects, environmental risks and resource benefits should be assessed and balanced carefully. However, bans on leasing and in some cases pre-lease activities of ever-larger portions of the OCS is contrary to responsible balancing of national energy and environmental goals.

The offshore production of natural gas translates into a wide range of positive energy and environmental benefits. Gas is being touted by lawmakers and others as the fuel of the nineties. As you prepare to pass a Clean Air Act this year—and I think you will—natural gas is expected to play a leading role as a major fossil fuel to help reduce our air pollution.

Gas burns far cleaner than coal or oil, emitting virtually no sulfur dioxide. Sulfur dioxide is the main component of acid rain. Even without acid rain, the demand for natural gas is expected to rise over the next two decades. We're going to need more and more of it to fuel electric-generating plants, particularly in New England.

Mr. ATKINS. Thank you very much. We appreciate it and we'll put the full statement in the record.

Mr. VERKLER. Okay. All right.

I just want to remind you, Mr. Chairman, though, that natural gas does not pollute the land and the water, and we can't move overseas like the major oil producers. We've got to depend on our domestic resources.

Mr. ATKINS. I appreciate that.

[The prepared statement of Jerry Verkler follows:]

STATEMENT OF
JERRY T. VERKLER
OF THE
INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA
BEFORE THE INTERIOR SUBCOMMITTEE OF THE HOUSE APPROPRIATIONS COMMITTEE

MARCH 8, 1990

My name is Jerry T. Verkler and I am Senior Vice President of the Interstate Natural Gas Association of America (INGAA). INGAA is a trade association whose members include most major U.S. and Canadian interstate and interprovincial natural gas pipelines.

I appreciate the opportunity to testify this afternoon on a matter that is crucial to our industry and the energy security of our nation: responsible development of our nation's natural gas resources on the outer continental shelf (OCS).

At a time when our petroleum imports now exceed 50% of our consumption, the natural gas industry has become increasingly alarmed about the annual prohibitions set by your subcommittee on OCS leasing in federal waters. These wide-spread moratoria have a major impact on planning for and development of offshore gas production. The OCS natural gas is a vital component of our nation's energy resources which accounts for 27% of estimated future potential natural gas reserves.

If all areas currently under moratoria were released for leasing today, it would take at least five years before any of those tracts could produce energy resources. If Congress continues on its present course—with ever larger portions of the offshore banned from development—we will place ourselves in an extremely vulnerable position in relation to the Organization of Petroleum Exporting Countries. We could find ourselves reliving the energy crisis of the 1970's while our own resources remain unused.

As the Senate Interior and Insular Affairs Committee staff director in 1979 who helped craft the National Environmental Policy Act (NEPA), I understand fully the importance of a thorough environmental assessment of major Federal actions. When considering offshore projects, environmental risks and resource benefits should be assessed and balanced carefully. However, bans on leasing—and in some cases, prelease activities—of ever larger portions of the OCS are contrary to a responsible balancing of national energy and environmental goals.

If it can be demonstrated that the benefits of developing a resource far outweigh the potential for some environmental risk, the project should go forward if it is otherwise important to our country's economic and security interests.

The offshore production of natural gas translates into a wide range of positive energy and environmental benefits. Gas is being touted by lawmakers and others as the wonder fuel of the 1990's. Clean Air Act amendments Congress is expected to pass this year will make natural gas the major fossil fuel to reduce air pollution. Natural gas burns far cleaner than either coal or oil, emitting virtually no sulfur dioxide. Sulfur dioxide is the main component of acid rain.

Environmental Protection Agency studies show that natural gas vehicles can be one solution to urban smog because they emit significantly less carbon monoxide, carbon dioxide and other contributors to urban pollution than alcohol and gasoline fuels.

Even without acid rain legislation, the demand for natural gas is expected to rise over the next two decades. The Energy Information Administration (EIA) of the Department of Energy projects that by the year 2000, use of natural gas to fuel electric generating plants will nearly double–from 3.2 trillion cubic feet today to about 6.2 trillion cubic feet.

This increased demand means the gas industry will need to increase production and find and develop new reserves to avoid future supply curtailments and much higher prices. According to the Potential Gas Committee, a group of respected industry, academic and government officials, 27% of the potential natural gas reserves we will need to meet this growing demand will come from offshore sources.

We cannot shut our eyes to the potential of offshore production of this environmentally sound fossil fuel. Nor is there reason to do so. In the report to accompany the bill making appropriations for the Department of Interior and Related Agencies for fiscal year 1990, this subcommittee gave fear of potential oil spills as a major underlying reason for banning leasing of some of the most promising offshore resource potential.

But natural gas production does not result in spills. Nor does natural gas production pollute the land and water adjacent to it. In fact, by reducing the need for imported oil and the number of foreign oil tankers, natural gas can actually reduce the potential for another major tanker spill. Offshore exploration is expected to result in the location of up to 106 trillion cubic feet of nonassociated natural gas—a six year supply— that can be produced without any oil.

Geologic data shows the prevalence of gas-only fields over crude oil areas in much of the OCS that is subject to the moratoria. If the moratoria are broadened, even more gas-prone areas will be locked up without, in INGAA's opinion, any significant environmental rationale.

It is our belief that few adverse impacts of offshore natural gas developments can be identified. The benefits, on the other hand, are clear and measurable.

INGAA believes imposing blanket moratoria on leasing of our offshore gas resources is unwise public policy. Furthermore, such a policy deprives the citizens of the interior states of clean-burning natural gas resources they will need to achieve national environmental goals and meet basic energy needs.

Mr. Chairman, there is one other aspect of this issue that I want to mention briefly. When the Outer Continental Shelf Leasing Act was passed some 40 years ago it settled once and for all the so-called "tidelands" question. Congress determined that the resources beyond 3 miles (except Texas and the west coast of Florida) belonged to all the people in all the states and not just to the coastal states. The people of Chicago, Detroit, Indianapolis and other interior cities and states own these gas resources and are being deprived of the full use and benefit of them. I hope you will remember their needs for natural gas as this issue is considered again.

In summary, INGAA supports the continuation of offshore natural gas production and exploration where it is carefully planned and environmentally safe. We urge you to think carefully about the long-term energy security of this nation when considering offshore leasing programs for the coming fiscal year.

Thank you again for this opportunity to testify.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/MINERALS MANAGEMENT SERVICE—BRISTOL BAY LEASES

WITNESS

C. DEMMING COWLES, BERING SEA FISHERMEN'S ASSOCIATION

Mr. ATKINS. C. Demming Cowles, representing the Bering Sea Fishermen.

Again, I would suggest we're keeping very firmly to our time limit. We have your full statement. If you could just touch on the critical points that you want to bring to the committee's attention, that would be helpful.

Mr. COWLES. Thank you, Mr. Chairman. I represent about 1500 fishermen, primarily natives, from western Alaska, who depend on the resources of the Bristol Bay area. The Bristol Bay area supports not only a commercial fishing industry of well over a billion dollars, but it's also the place where western Alaskans live and depend on those resources.

Based on your direction that those who speak least may be satisfied with the results, what we need this year is an extension of the moratorium in the Bristol Bay area. We want to stop the oil and gas companies from being able to drill this year. We also want the Secretary of Interior to begin the process of setting up the mechanisms to put that buy-back in place. Those leases should never have been let; oil should not be drilled in Bristol Bay, if there is oil. The leases should be repurchased by the Federal Government.

Mr. ATKINS. Thank you. Just very quickly, you're recommending, then, a buy-back and that this committee put that process—

Mr. COWLES. There is a study in——

Mr. ATKINS. There is a study presently undergoing——

Mr. COWLES. Yes, sir, there is a study underway.

Mr. ATKINS [continuing]. Mandated by this committee.

Mr. COWLES. Absolutely. We support that fully. We actually are the people who brought it to this subcommittee, and you were good to put that into the bill last year. It's coupled with some studies on the Senate side that are of equal importance with regard to the impact of the oil spill in Prince William Sound and how oil spills may affect fisheries.

Mr. ATKINS. So, you're not recommending that we accelerate in any way that, but rather when the results of the study come out, then we initiate a process for buy-back?

Mr. COWLES. Absolutely right. In the meantime, we need a moratorium in place for any drilling activities.

Mr. ATKINS. And you're looking for a moratorium on drilling activities in Bristol Bay, but your Navarin Basin and Chukchi Sea are two new—those are not included in the present moratorium?

Mr. COWLES. They are not included in the present moratorium. We have not yet taken a position on that, but, based on the seven spills we've had since the Exxon Valdez spill around the Nation, we think that areas that are as treacherous to operate in as Chukchi and Navarin should be looked at very seriously.

Mr. ATKINS. So, you have not taken a position on Chukchi and Navarin?

Mr. COWLES. Not to date, but that is something we're studying very closely.

Mr. ATKINS. When do you expect to have a decision on that?

Mr. COWLES. I suspect we will be making that decision within the next several weeks.

Mr. ATKINS. Let me just ask, if you could, submit to the committee your information on that, whatever backup and your final decision, so that we can have that available for our final decision on the appropriations bill.

Mr. COWLES. I'd be very happy to. Again, I want to thank the committee for their action last year and every other year that they've supported this. We've been fighting this fight since 1976. The area should never have been leased. We think it's time to retire them permanently.

Mr. ATKINS. Let me thank you for that and thank you for your important contributions to this committee's work in the past. You should know that Representative Conte was positively passionate in his recollections of fishing for salmon up there.

Mr. COWLES. I was fortunate to be one of two public people that got into that debate in full committee. We've made Mr. Conte an honorary Alaskan.

Mr. ATKINS. Terrific.

Mr. COWLES. Thank you very much.

[The prepared statement of C. Demming Cowles follows:]

TESTIMONY TO THE HOUSE OF REPRESENTATIVES SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES APPROPRIATIONS

C. Deming Cowles
725 Christensen Drive
Anchorage, Alaska 99501

March 8, 1990

Mr. Chairman and members of this Committee:

Thank you for this opportunity to speak before you today. My name is C. Deming Cowles and I am here testifying on behalf of the Bering Sea Fishermen's Association. My testimony addresses forthcoming decisions by this Committee concerning the Department of Interior's OCS program for oil and gas development related activities in waters off the coast of western Alaska.

BSFA is made up of about 1,500 fishermen residing in the western coastal areas of the State of Alaska stretching from Bristol Bay in the south to the Kotzebue Sound and outlying regions to the north. Our members are mostly Native small-boat fishermen involved in commercial and subsistence fishing for salmon, herring, halibut, crab and Pacific cod and other bottomfish.

We, as fishermen who depend on the oceans and a healthy marine ecosystem for our commerce and way of life, are very, very concerned about the prospects for long-term damage to the fisheries resources, marine mammal populations and the habitat which supports them from uninformed decisions resulting in uncontrolable, uncontainable and largely untested oil development in extremely rugged environments off the coast of western Alaska. Events of the past few years- with the March 24th Exxon Valdez catastrophe in Prince William Sound, grounding and subsequent oil spill from the Glacier Bay in Cook Inlet, and more recent oil spills in southern California and in the New York/New Jersey area- show that yes accidents will happen and that no the oil companies and their support industries just do not possess the ability to prevent and control them.

The specific geographic areas of concern to our fishermen that I would like to address today involve the prospect for future OCS oil and gas development within Bristol Bay and the Navarin Basin and Chukchi Sea.

BRISTOL BAY

You are no doubt aware of the overwhelming biological and economic value to the people of the State of Alaska and our nation as a whole held within Bristol Bay. Bristol Bay, in southeast Bering Sea, contains one of the richest fishing grounds and most productive ecosystems in the world. Its biological value in terms of fish, marine mammals and birds is unparalleled. The Bay is home, breeding and nursery grounds, and migratory route and resting place for billions and billions of these animals at some stage in their life. This area is an important feeding ground for roughly 1 billion outmigrating juvenile salmon annually; and over 100 million adult salmon pass through on their way to spawning grounds in western Alaska rivers. It has been identified as one of the most productive halibut nursery areas for North Pacific stocks. And it is also within the major breeding ground for red king crab for the entire Bering Sea.

The people of the Bay and other regions of western Alaska depend on these resources for their sustenance and traditional subsistence lifestyle.

It has been estimated that resources which support the commercial fisheries in Bristol Bay are worth about $1 billion annually and employ roughly 10,000 people on fishing vessels and on the shore. These fisheries include salmon ($200 million value to the fishermen alone), king and tanner crab ($70 million value to fishermen), herring (about $10 million value to fishermen), and Pacific cod, pollock and other bottomfish (roughly $700 million). These figures do not even account for the value of the subsistence fisheries and the other commercial salmon and herring fisheries in western Alaska which in some way depend on Bristol Bay.

In contrast to the fisheries resources, the estimated value of the recoverable oil in Bristol Bay is relatively low. It has been reported that the North Aleutian Basin contains about 7/10 of 1% of the nation's total offshore hydrocarbon reserves (roughly 279 million barrels of oil) or about 3% of what's in Prudhoe Bay. This hardly compares to the value of the commercial fisheries.

The history of the Bristol Bay lease sales (North Aleutian Basin Lease Sale 92) has been tortuous. In 1985, the State of Alaska and a broad based coalition of fishermen, Native groups, environmental organizations called for a ten year delay in leasing. The purpose of this proposed delay was to provide time so that the oil industry could develop environmentally sound technologies for drilling, transportation, oil spill containment and cleanup and until a more accurate understanding of the risks presented the environment and fisheries resources could be generated. A delay, however, was not granted. In a further effort to protect Bristol Bay in 1986, an injunction on Lease Sale 92 was sought, obtained and was in place until October 1988. After the injunction was lifted, over 200 square miles of Bristol Bay were leased.

Last year following the Exxon Valdez oil spill and subsequent failure of the oil companies and their agents to respond, contain and clean up the oil as promised, a one-year moratorium on oil and gas exploration and development in Bristol Bay was imposed and the Secretary of Interior was directed to study: (1) spill response and cleanup capabilities in the Bay, (2) impacts from a spill of the magnitude of the one which had occurred in Prince William Sound, and (3) options available for the buyback of the leases currently held by the oil companies in Bristol Bay.

It is now evident that the oil industry is unable to respond, even under ideal conditions, in an adequate manner to protect the environment, fisheries resources and fish habitat from spilled oil. The technology simply does not exist to contain and clean up oil in the harsh conditions (cold water temperature, unreliable weather, rough seas) of Bristol Bay. The Alaska Oil Spill Commission estimated that only 3-4% of the oil spilled in Prince William Sound was recovered even though Exxon expended roughly $1 billion in their efforts.

New and significant information will not be generated in the timeframe allowed under the requirements of the impact study targeted to be completed by March 1991. The actual long-term effects to the physical environment and the biological system in Prince William Sound will not be known for many years. We can only speculate.

The time for speculation, however, has past. The only way we can truly ensure that this undeniably valuable resource and fragile ecological area of our nation's OCS is preserved is through absolute permanent protection. In this respect, BSFA strongly recommends that this Committee directs the Secretary of Interior to establish the necessary mechanisms to buy back the leases in Bristol Bay based on the results of the buyback study currently underway; and extend to FY 1991 the moratorium on oil and gas exploration and development until such time that permanent protection is established.

One final comment on Bristol Bay. A month following the Exxon Valdez oil spill, a panel of scientists from the National Academy of Sciences traveled to the villages of Dillingham, Togiak and Aleknagik in Bristol Bay to speak with the people in a series of public meetings. Their directive was to evaluate prior OCS related studies focusing on the value of the natural resources in the Bay to the local Native people and concerns regarding oil development.

The feelings of most people who depend on the Bay for their livelihood and cultural lifeline can be summed up in the words of one village elder when he said, "subsistence fishing is not only a way of life, it is one of enjoyment. The joy of subsistence fishing is shared by all family members and I would like to see these subsistence activities passed on to my children and grandchildren. Should oil companies be permitted to develop Bristol Bay, I would not only lose monetary gains of commercial fishing, but I would lose a way of life and the social enjoyment of subsistence activities and would not be able to pass this on to my children and grandchildren."

NAVARIN BASIN AND CHUKCHI SEA

In the aftermath of the Prince William Sound catastrophe and other more recent oil spills, there is now a much more realistic understanding that oil spills generally will occur in areas where oil development takes place and that the oil companies' capabilities to respond and clean up oil spills are lacking effectiveness. According to a report of the Alaska Eskimo Whaling Commission, the likelihood of a blowout at a well drilled in the Chukchi Sea is one in three. The technology to contain a spill and control a blowout in areas of ground fast ice and harsh conditions in these areas just simply does not exist. The marine ecosystems are extremely fragile in these areas and may never recover from an oil spill.

The concern of our fishermen is that should a substantial oil spill or blowout occur at an exploratory or development well that not only would the marine mammals and fisheries resources in the immediate area be impacted, but that the oil would ultimately spread to the shores and nearshore areas and affect the fisheries habitat and resources in a substantially larger area.

BSFA is exploring the possibility of supporting a one-year moratorium on future leasing in the Navarin Basin and Chukchi Sea or until such time that more information is gathered and containment and cleanup technologies prove to be effective in responding to oil spills under the conditions in these areas.

END

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—CONSERVATION PROGRAMS

WITNESS

MARC LEDBETTER, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY

Mr. **ATKINS**. Marc Ledbetter, the American Council for an Energy-Efficient Economy?

Again, if I could admonish you to keep it very short—your full statement will be in the record, if you could touch on the high points.

Mr. **LEDBETTER**. All right. Very quickly, I wanted to notify the subcommittee that a broad coalition of environmental-consumer groups are going to be submitting to this committee an alternative energy conservation budget. That will be submitted to this committee within the next two weeks.

Let me just spend my short time pointing out two areas of concern in my testimony. The first is Department of Energy support for a window energy labeling program. As you probably are aware, window energy technology has taken off in recent years. High-performance windows are available now that were not available before, and it's very difficult to distinguish among these windows for consumers and architects and engineers. It is, therefore, very important to develop an energy rating program for these users of this information to distinguish among the windows.

Mr. **ATKINS**. We provided money for that purpose last year.

Mr. **LEDBETTER**. There was a small increase in the windows budget, but I believe it was only $200,000 above the previous year's funding, not all of which, only a very small fragment of which went to the window labeling program.

Mr. **ATKINS**. What's your recommendation for this year for the window labeling?

Mr. **LEDBETTER**. Since that action last year, there has been a new, nonprofit organization established called the National Fenestration Rating Council. This——

Mr. **ATKINS**. Let me just suggest that——

Mr. **LEDBETTER**. Change the name?

Mr. **ATKINS**. Yes, change the name. [Laughter.]

It sounds like it was dreamed up by some Federal bureaucrat. [Laughter.]

Mr. **LEDBETTER**. Well, the organization has representation from State energy organizations——

Mr. **ATKINS**. It's an excellent organization. I do think that a name that's——

Mr. **LEDBETTER**. Everybody hates "fenestration." The window industry will not jettison it, so we're stuck with it for now.

But, anyway, we will be developing a budget——

Mr. **ATKINS**. Let me suggest it ought to be thrown out the window. [Laughter.]

Mr. **LEDBETTER**. We will be developing a budget that we will give to this subcommittee prior to its decision——

Mr. **Atkins**. As soon as you get that, that would be appreciated with specifically, your estimate of what the cost would be to put a voluntary window labeling program in place.

Mr. **Ledbetter**. Right. All right. One other point is the multiphoton phosphor research. The Department of Energy has not requested any money for this research this year. GTE has been working with the Department of Energy under contract here. They've made remarkable progress. This is beginning to look like a much shorter-term technology development than it was when the project was started. All we need is one more year with the money, and GTE will make a decision on whether or not they can take over the research by themselves. They will not ask for any more Federal money after this year.

It's remarkable that they've made the progress they have. This could revolutionize fluorescent lamps. It's just ridiculous not to put a small increment of money into this program.

Mr. **Atkins**. Let me just, if I might ask, given that and given the tremendous commercial potential of this, and it's so close to the finish line, why would we—why would they require additional Federal money?

Mr. **Ledbetter**. They're not close to the finish line. They are very close to making the decision on whether or not it's worth their own extensive money to go forward. It's a threshold that they have to cross here. One more year of public support and they will make a decision on whether or not they need to proceed without public money.

Mr. **Atkins**. How much money of their money——

Mr. **Ledbetter**. How much money are they putting in?

Mr. **Atkins**. Of their own money?

Mr. **Ledbetter**. I'm unaware of how much money they're putting in.

Mr. **Atkins**. You could provide that for the committee for the record.

Mr. **Ledbetter**. I can ask GTE to do it.

Mr. **Atkins**. Okay.

Mr. **Ledbetter**. All right.

[Material was not supplied to the subcommittee at the time of printing.]

Mr. **Atkins**. Thank you very much, Marc, and let me thank you for your excellent work on this issue, and your work on the Council for an Energy-Efficient Economy makes us at least see the light in terms of the OCS struggle. At least somebody's doing something to turn down the volume on that debate.

Mr. **Ledbetter**. All right, thank you, Mr. Chairman.

[The prepared statement of Marc Ledbetter follows:]

ACE3 American Council for an Energy-Efficient Economy

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TESTIMONY TO THE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

ON DOE'S ENERGY CONSERVATION RESEARCH AND DEVELOPMENT PROGRAM

March 8, 1990

Mr. Chairman, and members of the committee, my name is Marc Ledbetter. My comments represent the views of the American Council for and Energy-Efficient Economy and the Energy Conservation Coalition. Both organizations are non-profit public interest organizations devoted to promoting energy efficiency.

I've come before this subcommittee many times to argue the importance of increasing support for energy conservation research and development. I know you've heard these arguments many times and generally agree with them, so I'll spare you the boiler plate today.

Alternative Budget for Energy Conservation

First, I would like to inform the subcommittee that a coalition of environmental, consumer, business, and state government organizations is again developing an alternative energy conservation budget.

This alternative budget is the fourth in as many years. While energy issues have changed in recent years, and a new president has taken office, we believe the need for an alternative conservation budget remains strong.

The idea of writing an alternative conservation budget arose because President Reagan's Department of Energy ranked energy conservation near the bottom of its list of priorities. Over the years, the Reagan Administration moved from ridicule of conservation and efforts to eliminate federal conservation funding, to what appeared to be grudging acceptance. Despite this acceptance, the last Reagan budget requested deep cuts in federal energy conservation programs.

With President Bush now in office, with administration officials regularly declaring energy conservation to be one of the Department of Energy's most important efforts, and with repeated calls from the public for increased federal support of conservation, you might ask whether an alternative to the President's conservation budget is necessary. After reviewing the President's budget, we unhappily conclude that it is.

Despite numerous speeches, press releases, and other communications from the Department of Energy that this administration's attitude toward conservation is radically different from the previous administration's, the fact remains that this administration's budget requests a cut in federal conservation funding. The cut is not nearly as large as those sought by the previous administration; nonetheless, a cut is sought. Judging by what was being said by administration officials prior to the budget's release, at least a small funding increase was expected. Furthermore, the allocation of federal funds among energy sources or technologies remains largely unchanged; conservation continues to recieve only a tiny percentage of the Department's budget.

To be fair, we believe there is a new commitment to and interest in conservation at the Department of Energy. Conservation is now discussed as in important national resource with enormous potential for reducing environmental problems, reducing oil imports, improving competitiveness, and all the other things we've been saying for many years. But until this rhetoric has money behind it, we find it difficult to believe that a fundamental change in the Department has occurred. Consequently, we feel compelled to provide Congress with an alternative, well-researched, sound conservation budget, that represents a strong commitment to conservation, yet is tempered by the serious budget constraints facing this country.

Our alternative budget will be provided to this subcommittee within the next two weeks. It will recommend levels of funding for existing research programs, and it will propose a number of important new initiatives.

General Comments on Administration Budget

In reviewing the Administration's budget we found a new commitment to commercializing and expanding use of energy-efficient technologies. Throughout the budget, from the Energy Analysis and Diagnostics Centers to the Least Cost Utility Planning Program, the Administration is requesting a larger role in promoting the use of energy-efficient technologies and practices. We enthusiastically support this new emphasis on technology transfer, and believe that DOE can make a very productive contribution in this area.

We are, however, very disappointed that the Administration has proposed expansion of technology transfer at the expense of advanced technology development. Deep cuts can be found throughout the Administration's budget in this area. For example, deep cuts are requested in advanced refrigeration, thermally activated heat pumps, advanced lighting, industrial process efficiency, advanced fuel cells for transportation, advanced gas turbines, and CFC use in automobiles. If these programs didn't hold so much promise, their cuts would be easier to accept. But most of these programs have a very good track record, and are very likely to result in successful technology development. We urge this subcommittee to reject these cuts.

Window Energy Rating and Labeling

One area very much in need of additional support is the windows and daylighting research program. This program has consistently been a good performer and has the strong support and cooperation of the fenestration industry. Of particular importance now, researchers in the program are providing technical support to a new national effort to develop energy ratings and labels for windows. Almost all major components of residential buildings that influence a building's energy consumption are now rated and labeled to help consumers, builders, and architects make purchasing decisions. This is true for insulation materials and all major household appliances. But windows, which are currently responsible for about 25% of total residential energy use, are rated and labeled any number of ways, making comparison among products almost impossible. A credible and accurate means of comparing windows is especially important now that windows are becoming high tech assemblies with selective coatings, gas fills, and sophisticated thermal breaks. It is no longer a matter of choosing between single and double glazed windows.

A new non-profit organization, called the National Fenestration Rating Council was established in December, 1989 to develop a national energy rating system for buildings. After much discussion and effort, a wide range of organizations and interests are now represented on the Council and are involved in its business. State energy offices, window industry trade associations, public interest organizations, and other groups are engaged in the very difficult task of developing a mutually agreeable, and technically accurate means of assigning energy ratings to fenestration products.

DOE has provided very limited support for this project from FY 1990 funds. Much greater support is needed to accelerate and expand the effort, and to leverage expected industry and state government contributions. A final budget for this project has not been developed, but we expect it to be in the area of $1 million per year for the next three years. A DOE contribution of $500,000 to $700,000 per year would provide a much needed boost in leveraging funds from the window industry. We will provide the subcommittee with more specific information on this project as soon as it is developed by the NFRC.

Multi-photon Phosphor Research

Two years ago, DOE started a research program to investigate multi-photon phosphors for fluorescent lighting. If successfully developed, these new phosphors could theoretically emit about twice as much light per unit of energy consumed. Two years of the three-year research program have now passed, and important, encouraging progress has been made. GTE, the program's contractor, would like to fabricate some synthetic phosphors for testing, now that their research has identified good candidate phosphors. Unfortunately, the Administration has not requested support for the last year of this research. One more year of research, supported with $500,000 from DOE, will yield enough information for GTE to decide whether they can proceed with the research on their own, without DOE support. That's a very small investment for learning such important information. We strongly urge this subcommittee to recommend continued support for the program.

Demonstration and Implementation of New Building Energy Standards

We urge this committee to support DOE's request for an expanded program to demonstrate and implement DOE's new Building Energy Standards. These new standards, which are calculated to reduce energy consumption from 15-20% below current standards levels, represent a major achievement by DOE. If widely adopted and properly enforced, they could have a major effect on building energy consumption. After all the years and effort it took to develop these standards, it would be very short-sighted to let these standards languish, and remain largely unused. The Administration's proposal to conduct demonstrations, prepare training materials, and develop a training program to help architects, engineers, and code officials implement the standards deserves the subcommittee's support.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—INDUSTRIALIZED HOUSING

WITNESS

JOSEPH LAQUATRA, ASSISTANT PROFESSOR, DEPARTMENT OF DESIGN AND ENVIRONMENTAL ANALYSIS, CORNELL UNIVERSITY

Mr. ATKINS. Joseph Laquatra?

Mr. LAQUATRA. Thank you, Mr. Chairman. I believe you have my written statement.

Mr. ATKINS. We do.

Mr. LAQUATRA. In lieu of reading a brief prepared statement, I'll just highlight some of the important points of it.

In fiscal year 1989, the U.S. Department of Energy initiated a multiyear program in energy-efficient industrialized housing. The program is designed to stimulate innovation in the home-building sector by assisting industry in developing highly energy-efficient and cost-competitive factory manufacturing techniques. These techniques and construction methods are already well developed in other countries, such as Japan and Sweden, where public sector funding for building-related research far exceeds that of the United States.

Not coincidentally, these countries lead the world in housing quality. Further, in Sweden, where factory-built homes account for 95 percent of all housing construction, industrialized housing builders produce housing that far surpasses their American counterparts in energy-efficiency. High quality and energy performance are responsible in part for the fact that last year 1 in every 15 Swedish homes was built for a growing housing export market.

Last year the Japanese building industry reinvested about 3 percent of sales income in research on housing. Total expenditures for housing research in the United States were about 100th of 1 percent of sales.

There are many factors that retard the rate of technology advancement in the U.S. housing industry. Its fragmentation and localization are key points there. Congress recognized the need for industrialized housing research by directing the Department of Energy to create regional housing research centers. The DOE program currently includes two centers, one in the Northwest and one in the South.

There's a critical need to expand this effort to the Northeast where the housing industry is confronted with a unique set of problems. The Northeast is unique with respect to the size and type of organizations that erect housing, the flow of materials, and many other points.

In addition, with major shipping ports on the Atlantic Coast serving western and eastern Europe and direct access to the free trade market in Canada, the region is also a logical area for promoting housing exports.

Mr. ATKINS. Thank you very much. Can you just indicate for us why our industry is putting such a small amount of their resources into research when, for instance, the Swedish industry has such a large investment into research and why the Federal Government should be pouring more of the public monies into industry research if the industry is not willing to make their own——

Mr. LAQUATRA. The housing industry in this country is unique with respect to many other types of industries. It's localized, very local activity. It's fragmented. Most builders typically only build a few homes per year.

Mr. ATKINS. That's not the case for manufactured housing.

Mr. LAQUATRA. No, that's right.

Mr. ATKINS. I'm talking specifically manufactured housing.

Mr. LAQUATRA. Manufactured housing offers opportunities for greater quality and energy efficiency than can be realized through site-built housing. That's because of controlled conditions, not subject to inclement weather.

Mr. ATKINS. I appreciate that, but why isn't the manufactured housing industry putting more of their own resources in?

Mr. LAQUATRA. That also is fragmented. Because of codes that differ State by State, it's very difficult to promote interindustry or interstate cooperation along those lines. There's also the problem of consumer acceptance; that there's an enormous amount of work that has to be done to educate consumers that a house that comes out of a factory is not of an inferior quality, but is, in fact, far superior.

There's an image problem——

Mr. ATKINS. That doesn't have anything to do with energy-efficiency research?

Mr. LAQUATRA. Well, factory-built housing can be far superior in that regard than site-built. Tests have proven that. There is a lot of research in that regard.

Mr. ATKINS. What's your view about this committee requiring a private sector match for the advanced housing centers?

Mr. LAQUATRA. That's a very key part of the program and very workable, as has been shown in Florida where GE has participated.

Cornell University and Pratt Institute have a joint venture for advanced housing, and in our work to date we are finding that there would be significant State contributions and industry contributions. That's a good part of that program.

Mr. ATKINS. What's the level, the percentage level, that you feel would be reasonable to impose on the States and the industry?

Mr. LAQUATRA. I believe it's 50 percent.

Mr. ATKINS. You'd be willing to go 50 percent?

Mr. LAQUATRA. Yes.

Mr. ATKINS. Thank you very much.

Mr. LAQUATRA. Thank you.

[The prepared statement of Norman Scott as presented by Joseph Laquatra follows:]

STATEMENT

Presented To

U.S. HOUSE OF REPRESENTATIVES
INTERIOR SUBCOMMITTEE OF THE APPROPRIATIONS COMMITTEE

In Support Of

THE U.S. DEPARTMENT OF ENERGY CONSERVATION RESEARCH AND DEVELOPMENT PROGRAMS

ADVANCED HOUSING CENTERS

By

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March 8, 1990

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Cornell University would like to thank the Subcommittee for this opportunity to present testimony in support of the U.S. Department of Energy (DOE) Conservation Research and Development programs. In fiscal year 1989, DOE initiated a multi-year program in energy-efficient industrialized housing. The program is designed to stimulate innovation in the home building sector by assisting industry in developing highly energy-efficient and cost-competitive, factory-manufacturing techniques.

These building techniques and construction methods are already well developed in other counties, such as Japan and Sweden, where public sector funding for buildings-related research far exceeds that of the U.S. Not coincidently, these countries lead the world in housing quality. Further, in Sweden where factory-built homes account for 95% of all housing construction, the industrialized housing builders produce housing that far surpasses their American counterparts in energy efficiency. High quality and energy performance are responsible, in part, for the fact that last year 1 in every 15 Swedish homes was built for a burgeoning housing export market.

The advances in housing quality and energy performance pioneered in Scandinavia and Asia are inextricably linked to a strong commitment to housing-related research. As reported by the Office of Technology Assessment (OTA), the U.S. lags far behind countries like Sweden and Japan in construction-related research expenditures. Last year the Japanese building industry reinvested about 3% of sales income in research. Total expenditures for housing research in the U.S. were about 0.01% of sales. Continuation and expansion of the DOE housing-related research efforts are badly needed.

There are many factors that retard the rate of technology advancement in the housing industry in the U.S. and necessitate public sector support. The provision of housing in this country is in many respects a local activity undertaken by a highly fractionalized and vast number of participants, including landowners, builders, tradespeople, developers, architects, government officials, trade unions, lenders and real estate agents. The high capital cost of construction, cyclical fluctuations in housing demand and the fact that many building organizations are relatively small, make substantial private sector research expenditures impractical. In addition, participants in the industry, including those involved in the development, construction and regulation of real property, typically lack formal education in basic areas of building technology. All of these factors contribute to the ten to twelve year period of time required for new building methods to diffuse into common practice.

Congress recognized the need for industrialized housing-related research and development by directing DOE to create regional research centers. The DOE program currently includes two centers, one in the Northwest and one in the South. The centers work with the building industry in their regions to conduct research and develop innovative design methods, building products and manufacturing processes. There is now a critical need to expand this effort to the Northeast, where the housing industry is confronted with a unique set of housing problems, research needs and opportunities for industrial development.

The Northeast is unique with respect to the size and type of organizations that erect housing, the flow of materials, the regulatory environment, labor issues, and housing styles and preferences. Coupled with severe winters, harsh summers and some of the highest energy prices in the country, energy conservation is particularly important in the Northeast. The Northeast is also faced with pronounced housing affordability problems because housing costs exceed the national average by 33 percent. In addition, industrialized building practices in the Northeast can have a profound effect on the region's endemic unemployment problems. In comparing conventional building practices to industrialized housing an OTA study stated, "Employees in such (industrialized housing) facilities could be treated more like workers in automobile factories than day laborers, enjoying continuity of employment, skill acquisition, and identification with the employer or firm." Finally, with major shipping ports on the Atlantic coast serving Western and Eastern Europe and direct access to the free trade market in Canada, the region is also a logical area for promoting housing exports.

To address these problems and take advantage of the opportunities, Pratt Institute and Cornell University have created a joint program of research, training and instruction. This Joint Venture for Advanced Housing will work with industry to develop new and emerging energy conservation technologies for housing and speed their diffusion into practice. The joint venture will stress the adoption and utilization of industrialized housing methods and techniques. By our estimates, the application of advanced industrialized building methods and building processes can reduce housing related energy expenditures in the Northeast by 30 to 40% relative to current consumption levels.

A DOE-supported research center in the Northeast would provide a nexus for concentrating the vast energies and talents of the region's building professionals, organizations and individuals on critical housing related energy issues. There is a critical need to provide a central focus in this region because the industry is fragmented into construction firms, product manufacturers and distributors, subcontractors and an array of specialty organizations. As a result, there is little direct interaction between research, product development, construction, and marketing. An application of an innovation must depend on more than a chance meeting of an architect or engineer who is aware of a new product or technique, a builder unafraid to use it, a supplier who has it at the right price, and tradesman who is willing to work with it. Also, it must be acceptable to a building inspector and attractive to the prospective home buyer.

By adopting industrialized or factory-built housing methods, it is projected home purchase costs can be reduced in the region by an average of 10 percent. This could translate into thousands of additional families each year who will be able to qualify for a mortgage. In addition, lower energy costs will further improve the affordability of new homes. Improved energy-efficiency is one of the most effective and lowest cost strategies for reducing expenses associated with home ownership.

There are several barriers to the adoption of factory-manufacturing in the U.S. Consumers have been reluctant to buy factory-built homes because of a perception of low quality. Swings in housing sales make the financial investments in plant, engineering and equipment a high risk venture. In addition, industry fragmentation has discouraged research related to improved factory manufacturing techniques. However, industrialization of the building process offers tremendous opportunities for reducing energy and construction costs not possible with on-site building practices.

Factory fabrication opens the door to the use of a spectrum of new products, i.e. composites, recycled materials, and advanced building assemblies not feasibly implemented at the building site. For example, the construction of wall and window assemblies can be rethought if freed from the limitation that they must be able to be lifted and erected by a single worker in the field. In Sweden, most housing manufacturers now produce large wall sections of about 30 feet in length that are installed with a crane. The large components minimize the number of joints in the envelope, providing a highly energy-efficient building skin. Also, the small number of large components allow the homes to be made weather-tight in 1 day.

Prior to federal funding of the regional housing centers, research to develop and disseminate innovations in industrialized building methods was non-existent. Other hurdles to the use of factory building practices, such as regulatory and institutional barriers, can be diminished by federal involvement. We encourage Congress to continue to support the regional research program in advanced housing and expand the effort by creating a much needed third research center in the Northeast.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR /U.S. GEOLOGICAL SURVEY—WATER DATA COLLECTION PROGRAMS

WITNESS

JOHN A. FOCHT, JR., PRESIDENT, AMERICAN SOCIETY OF CIVIL ENGINEERS

Mr. ATKINS. John Focht. Is that right?

Mr. FOCHT. That's close enough, sir.

Mr. ATKINS. Close enough, close enough for Government work. President of the American Society of Civil Engineers.

Mr. FOCHT. Yes, sir, and I'm here this afternoon representing eight—seven other societies, about a half a million engineers.

Mr. ATKINS. I've got them and we'll put those down in the record and your full statement will go in the record.

Mr. FOCHT. Our intent is to speak on behalf of the continuity of the USGS basic water quality and quantity data collection program. We feel like the cuts that have been proposed would be very adverse to the planning activities that engineers carry on, not so much in terms of what they do, but on the end product, because we feel like that, without the adequate data, there will ultimately be a lowering in the quality of the design and of the finished product. So, it's appropriate really for the committee to continue the funding at the current levels.

There has been over several years a reduction in the amount of data and the data points across the country. We really feel like it's essential and it is a part of a national program since it has to be done all the way across the United States.

Mr. ATKINS. Tell me the dollar amount that you're looking to have us——

Mr. FOCHT. We're looking actually for you to continue the $21.6 million in the Federal program for data collection and analysis and the $60.4 million in the Federal-State cooperative program.

I think it's of interest, the States are willing to put up more money than the Federal program has in that area.

Mr. ATKINS. Given those two, do you have a priority if we're not able to reach that full amount, between the two programs?

Mr. FOCHT. No, I think actually they ought to be—if you had to cut them, I'd say cut them about even, because they both are essential. It would be difficult trying to split it as you work it across the entire Nation.

We simply feel like, in particular, as we look at the requirements under the Water Quality Act of 1987, the Omnibus Development Resources Act of 1986, and the Safe Drinking Water Act of 1986, that the expenditure of $1 billion there is very dependent upon procurement of appropriate data on which to base design.

Mr. ATKINS. Now that's certainly a good point. As you know, Chairman Yates has been a strong supporter of the program over the years——

Mr. FOCHT. Yes.

Mr. ATKINS [continuing]. And has restored many of the cuts.

Mr. FOCHT. We're aware of that and we just elicit your continued support.

Mr. ATKINS. Thank you.

Mr. FOCHT. Thank you, sir.

[The prepared statement of John Focht follows:]

AMERICAN SOCIETY OF
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TESTIMONY OF

JOHN A. FOCHT, JR.

PRESIDENT

AMERICAN SOCIETY OF CIVIL ENGINEERS

ON BEHALF OF THE

AMERICAN ASSOCIATION OF ENGINEERING SOCIETIES
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
AMERICAN WATER WORKS ASSOCIATION
AMERICAN CONSULTING ENGINEERS COUNCIL
WATER POLLUTION CONTROL FEDERATION

ON THE

U.S. GEOLOGICAL SURVEY

FISCAL YEAR 1991 BUDGET REQUEST

SUBMITTED TO THE

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 8, 1990

Good afternoon, Mr. Chairman and members of the Committee. I am John A. Focht, Jr., President of the American Society of Civil Engineers.

The American Society of Civil Engineers (ASCE), on behalf of the American Association of Engineering Societies (AAES), National Society of Professional Engineers (NSPE), American Water Works Association (AWWA), American Consulting Engineers Council (ACEC), and Water Pollution Control Federation (WPCF), representing over one-half million engineers, strongly opposes the Administration's proposed FY91 budget cuts for the U.S. Geological Survey's surface water data collection and analysis activities. We believe these cuts would limit unwisely the nation's future ability to manage its precious water resources, and could, in the long run, cost the nation more through over-built or inadequate water facilities. This is a classic case of penny-wisdom and pound-foolishness. At a minimum, for fiscal 1991 Congress should maintain current services at a level of $21.629 million in the Federal Program for data collection and analysis and $60.416 million in the Federal-State Cooperative Program.

The cost of collecting water data is not great, but the impact of such data is immense and far-reaching. These data are critical to a wide range of activities, including reservoir operation; water quality and supply studies; water law court decisions; wastewater treatment discharges into streams; drainage structures for highways, bridges and culverts; flood insurance and management studies; detention pond studies for urban runoff control; planning and design of hydroelectric projects; water basin planning and investigation; forensic analysis; environmental impact analysis;

and ice forecasting, jam and control studies. The need for complete basic water data is essential to proper engineering design. How can engineers devise optimum responses, and design the most cost-effective facilities, if they have incomplete and inadequate hydrologic data? The Federal cost of basic water data collection and analysis, approximately one-half the water resources investigations budget, pales when compared to the cost of facilities which will be based on inadequate data as well as to the potential loss of property and life that can occur if errors in design result from use of a faulty data base. Additionally, the extreme drought conditions experienced by much of the nation in recent years underscores the importance of maintaining uninterrupted records.

Surface water data collection activities are carried out in the Federal Program and the Federal-State Cooperative Program of the U.S. Geological Survey's Water Resources Investigations Division (WRD). The Cooperative Program is budgeted at $56.147 million for fiscal 1991, $4.269 million (or 7%) below the level to maintain current services of $60.416 million. Because the Cooperative Program is funded on a 50/50 matching basis with the states, the $4.269 million Federal cut will be matched by the states for a total cut of over $8.5 million. The Cooperative Program has, over time, evolved into the backbone of the nation's surface water data gathering network. Proposed cuts of this magnitude are severe and should be rejected by Congress. The Administration's $21.276 million FY91 request for the Federal Program is $353,000 or 1.6% below the level to maintain current services of $21.629 million.

The Administration has proposed a $2.5 million increase above the baseline for the U.S. Geological Survey's Water Resources Division in FY 1991. However within this $155.7 million budget request, substantial needed increases for spending on the National Water Quality Assessment Program and Global Change Hydrology have been accomplished by disturbing cuts in programs such as basic surface water data collection. Without challenging the Administration's plan to increase funding for studies of water quality and global climate change impacts, we must not forget the importance of maintaining the nation's water quantity data collection network. In fact, maintaining this data collection network is absolutely essential for conducting studies of climate change impact on water resources.

It is difficult to predict exactly which gauging stations will be eliminated under this budget proposal. There is no doubt, however, that hundreds of data collection stations will be threatened. The reductions proposed in the Cooperative Program are, indeed, quite alarming. The $4.269 million cut in the Cooperative Program will lead to the termination of 700 continuous recording posts, or 18% of all continuous recording stations supported by the Cooperative Program.

The $353,000 cut in the Federal Program will result in the loss of 30 continuous recording stations. This would mean that 6% of the continuous recording stations supported by the Federal Program would be eliminated. These are all recording stations that are designed to be permanent in order to provide an absolutely reliable data record.

Cuts of this magnitude, particularly when considered with previous funding cutbacks, raise very serious implications. The number of continuous record gauging stations operated by the U.S.G.S. fell from 8830 in FY 1980 to 7239 in FY 1989, an 18% cut. Additional cuts have been rejected by this committee in recent years.

The U.S. Geological Survey has used cost sharing arrangements with non-federal agencies to stretch further the federal funds appropriated for water resource data collection. Whereas we believe complete federal funding is the best way to ensure continuity of data collection over multi-decade time periods, cost sharing is a feasible and attractive alternative to reduced data collection. It should be noted, however, that in recent years, the states have been willing to spend considerably more than the Federal Government in the Cooperative Program for data collection and analysis. In fiscal 1991 for example, the states are willing to spend $76.5 million in the Cooperative Program, while the Federal Government has proposed $56.1 million, a gap of $20.5 million or 36%.

We believe that the U.S.G.S. basic water quantity data collection activities are:

1) essential, because the value of hydrologic data increases with both the length and continuity of the record;

2) the logical responsibility of the Federal Government because the states cannot possibly assume the support and leadership role of U.S.G.S. for interstate water systems;

3) cost-effective, because coordinated water data collection eliminates overlapping and duplicative efforts.

Data analyses as well as research and development of new predictive techniques can be accomplished by innumerable public or private water-resource agencies, as the need arises, if the long-term basic data exists. If the data is lacking, no one, including the U.S.G.S., can manufacture it. Accordingly, this activity must be one of U.S.G.S.'s highest priorities.

ASCE, AAES, NSPE, AWWA, ACEC, and WPCF urge the Congress, at the very least, to reject the proposed cuts for U.S.G.S. surface water data collection activities, and appropriate fiscal year 1991 funds of $21.629 million in the Federal Program for data collection and analysis and $60.416 million in the Federal-State Cooperative Program.

The Administration's proposed cuts in water data collection are particularly puzzling in light of recent enactment of major water resource legislation, including The Water Quality Act of 1987 (P.L.100-4), The Omnibus Water Resources Development Act of 1986 (P.L.99-662), and The Safe Drinking Water Act Amendments of 1986 (P.L.99-339). The efficient annual expenditure of billions of dollars in these programs will be seriously undermined by cuts in basic water data collection.

AMERICAN SOCIETY OF CIVIL ENGINEERS

The American Society of Civil Engineers (ASCE), founded in 1852, is the oldest national engineering society in the United States. Membership, held by more than 100,000 individual professional engineers, is about equally divided among engineers in private practice; engineers working for federal, state or local governments; and those employed in research and academia. The Society's major goals are to develop engineers who will improve technology and apply it to further the objectives of society as a whole, to promote the dedication and technical capability of its members and to advance the profession of civil engineering.

AMERICAN ASSOCIATION OF ENGINEERING SOCIETIES

The American Association of Engineering Societies (AAES) is a multi-disciplinary organization dedicated to advancing the knowledge, understanding, and the practice of engineering in the public interest. Located in Washington, DC, AAES includes 13 member societies, 6 associate societies, and 3 regional societies representing over 500,000 engineers in industry, government and education.

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

The National Society of Professional Engineers (NSPE), is a professional society, representing more than 75,000 engineers of all disciplines nationwide. The members are organized into 54 state and territorial societies and 535 local chapters, and work in industry, education, private practice, construction, and government.

AMERICAN WATER WORKS ASSOCIATION

The American Water Works Association (AWWA) is a 108 year old scientific and engineering association, which is the largest association of drinking water professionals in the world. AWWA has over 46,000 members which includes utility operators, engineers, scientists, professors, health regulators, environmentalists, and many other people that have a genuine interest in drinking water. AWWA's membership includes 3,200 utilities which supply 75% of the nation's drinking water.

AMERICAN CONSULTING ENGINEERS COUNCIL

The American Consulting Engineers Council (ACEC), a federation of state and regional councils, is the largest national organization of independent consulting engineering firms. ACEC's more than 5,000 member firms represent 156,000 employees and annually design over $100 billion in constructed public works and private industry projects. Member firms offer a wide variety of professional engineering services including civil, electrical, mechanical, structural, environmental, geotechnical, metallurgical, chemical, acoustical, industrial, mining and agricultural. Firms vary widely in size, employing anywhere from one to several thousand engineers.

WATER POLLUTION CONTROL FEDERATION

The Water Pollution Control Federation (WPCF) is an international non-profit organization dedicated to the preservation and enhancement of water quality and water resources and the relationship of those resources to the total environment. The Federation: advances the science of water quality; educates; disseminates technical information; increases public understanding, and promotes sound public policy. Founded in 1928, the Federation has over 34,000 members in 45 North American Member Associations, 9 Operator Associations, and 22 overseas affiliates. WPCF members include civil and sanitary engineers, scientists, wastewater treatment plant operators and managers, and others working in state and local government, federal agencies, industry, academia, or private practice.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF THE INTERIOR/BUREAU OF MINES—MINERAL INSTITUTES

WITNESS

ROBERT D. ARCHIBALD, VICE PRESIDENT, OPERATIONS, NATIONAL STONE ASSOCIATION

Mr. ATKINS. Robert Archibald, speaking for the National Stone Association?

Mr. ARCHIBALD. Good afternoon. I'll make this very brief.

Mr. ATKINS. We appreciate that.

Mr. ARCHIBALD. I'm here today on behalf and in support of the funding requested by the Minerals Institute that was outlined by Dr. Warner in his testimony submitted earlier this afternoon.

The National Stone Association, or NSA, is a national trade organization based here in Washington which represents nearly 500 member companies engaged in the production of crushed stone for construction aggregates, agricultural limestone, and many other uses in the 50 States. The crushed stone industry has been historically composed of small, unsophisticated family-owned businesses with small staffs normally composed chiefly of family members. As regulations continue to become more prevalent and complex, the unsophisticated and uneducated companies will lose their ability to compete efficiently. This will force many small companies out of business, thus causing aggregate prices to increase through decreased competition in any given market area.

In order to stay in business, these companies, some 3,000 of them, will need access to young, technically-trained professionals which are currently not available. The Minerals Institute's program provides an avenue by which NSA can help introduce curricula in our Nation's mineral engineering schools to train tomorrow's quarry engineers. This type of curricula currently does not exist in the U.S., where some 2 billion tons of aggregate are produced annually.

In the United Kingdom, on the other hand, which produces only 300 million tons of aggregates annually, several universities offer quarry engineering and enjoy enrollment of 300 students. That's one student for every million tons produced. Using the student-to-production ratio in the UK, 2,000 students would be enrolled in quarry engineering curricula in the U.S. if it existed, which it does not.

Obviously, the need for quarry engineering in the U.S. exists, and the Mineral Institute program is the only vehicle through which it can be efficiently implemented on a national basis. As attention continues to turn toward the environment and ways to protect it, quarry operators are continually challenged to find ways to produce stone safer, cleaner, and with less pollution while struggling to maintain the already-small profit margins common in the industry.

Very little research has been conducted to help quarry operators in these areas, and none on a concerted level. Here again, the Mineral Institute's program is the only source to which quarry operators can turn to find nationally-coordinated research facilities. Literally hundreds of companies are searching for areas to invest in this type of research. The Mineral Institute can provide a springboard for leveraging their Federal and matching funds while conducting the much-needed research for the crushed stone industry.

The National Stone Association and the some 40,000 employees it represents nationwide are strongly committed to the implementation of quarry engineering, curricula, and the continuance of the research so vital to our industry. That's why NSA respectfully recommends the appropriate levels of funding for the Mineral Institute for fiscal year 1991, so that we can cost-effectively help to rebuild our infrastructure and maintain our high levels of national productivity.

Mr. ATKINS. Do you expect that there are particular schools that are going to start programs in quarry engineering?

Mr. ARCHIBALD. Yes. We have—from where Dr. Warner is from, the University of Missouri at Rolla, it is leading the way. There are five other mining engineering schools in the U.S. which are currently considering implementing this.

Mr. ATKINS. Appear to introduce the curriculum?

Mr. ARCHIBALD. Yes. It's well on its way, yes.

Mr. ATKINS. Thank you.

Mr. ARCHIBALD. But we need their continued support to act as a congruent for that.

Mr. ATKINS. Thank you very much.

Mr. ARCHIBALD. Thank you, sir.

[The prepared statement of Robert Archibald follows:]

Testimony Presented
Before
Committee on Appropriations
United States House of Representatives
Subcommittee on Interior and Related Agencies

by
Robert D. Archibald, P.E.
Vice President, Operations
National Stone Association

for the
Mineral Resources Committee
National Association of State Universities
and Land Grant Colleges

and the
National Association
of Mineral Institute Directors

March 8, 1990

The National Stone Association (NSA) submits this statement on behalf of the National Association of State Universities and Land Grant Colleges (NASULGC) and the National Association of Mineral Institute Directors (NAMID) in support of appropriation of funds for the State Mining and Mineral Resources Research Institute Program, reauthorized in 1988 through P.L. 98-409 as amended by P.L. 100-483.

NSA is the national trade association representing and promoting the wide-ranging interests of the crushed stone industry. The Association, based in Washington, D.C., provides its services to the industry through marketing, engineering research, governmental and public affairs activities and by monitoring safety, health, environmental and other issues. In its marketing and engineering functions the Association emphasizes research, testing and consulting activities that are designed to assist quarry operators in serving the users of crushed stone products.

NSA relies heavily on NAMID in several ways. The Mineral Institutes program provides a conduit for exchange of information between the crushed stone industry and academia. This information exchange is critical to the continuance of our current effort to implement Quarry Engineering curricula in our nation's mineral engineering institutes. As with nearly all industries in our country today, the demand for young, technically-trained professionals is increasing. The Mineral Institutes program provides an avenue for development of the curricula required to educate tomorrow's quarry engineers.

The Mineral Institutes program also acts as a liaison between the crushed stone industry and the nation's mineral research centers. In the future, an increasing amount of crushed stone-related research will be required to develop safer and more environmentally sound and cost effective means to produce the billions of tons of aggregates which will be needed to rebuild our crumbling infrastructure.

NSA is committed to funding both education and research related to the crushed stone industry. Federal funding of the Mineral Institutes program provides a means by which NSA and others may contribute to an existing base and thus leverage a great deal of private funds which otherwise might not be made available. For example, NSA has budgeted $10,000 for scholarships in 1990 to be made available to minerals engineering students interested in pursuing education and careers in the crushed stone industry. Through the Mineral Institutes program, NSA is able to identify the most appropriate schools and students to whom the scholarships may be made available. NSA also intends to contribute additional funds in the future to those mineral institutes involved in research geared toward improving operational practices for crushed stone producers.

The Congress, this Subcommittee, along with academia, the economic community, the research field and many Americans in all segments of our society, have been hearing much, and saying much, about the nation's crumbling infrastructure. We know that it will take a new commitment of funding, expertise and patience to get the rebuilding task underway. But it must be done, and the effort must begin now. In order to rebuild our infrastructure, to reinstate a true maintenance ethic and to do the job properly, a great deal of raw materials and the means of safe and efficient extraction, together with hundreds of new, educated professionals will be required.

The 1989 production of 1.236 billion tons of crushed stone is expected to increase to 1.650 billion tons by the end of the decade; a 35 percent expansion. This increase may expand even further if the demand, as a result of infrastructure rebuilding programs, increases. Crushed stone is the primary material on which most of today's construction is founded. It is a primary ingredient in ready-mix, mortar, asphalt and concrete. It is required in the construction of roads, bridges, churches, schools, hospitals, airports, dams, sewers, water supply systems, railroad and many other applications. Without crushed stone there would be no modern transportation systems, no high-rise office buildings, no concrete sidewalks. Even modern agriculture would suffer. Crushed stone is also used in medicines, plastics, paint, cosmetics, pottery, glass, carpeting, and a host of other applications. It is used for water and sewage filtration, erosion control and landscaping.

To identify the demand for crushed stone in another way, the U.S. Bureau of Mines has estimated that each of our citizens requires 40,000 pounds of new minerals each year. At this level of consumption, the average newborn American will require a lifetime supply of 1.238 million pounds of stone, sand, gravel and cement for the rebuilding of roads and streets, homes, schools, offices and factories.

Obviously, we need to increase our capacity to produce mineral products, one of these being crushed stone. And by doing so, we can guarantee the quality of life so valued by Americans will be in place for generations to come.

A recent study by the Commission on Industrial Productivity at MIT said that "to live well, a nation must produce well." The same report noted that many observers have charged that American industry is not producing as well as it ought to produce, or as well as it used to produce. If this is true and if the trend cannot be reversed, then sooner or later the American standard of living must pay the penalty. The MIT panel recommended that the nation focus on four major kinds of investment: basic education and literacy, long term business strategies, policies that stimulate private production and rebuilding of the infrastructure.

The crushed stone industry has the capability to help the nation meet many of these objectives. But to do so we must have the foresight and the willingness to broaden our horizons, to work hand-in-hand with the research and academic community and all of their components. And, in turn the academic community, more precisely the nation's mineral institutes must have adequate funding to continue their research and dissemination of information vital to the efficient supply of aggregates. That is why the National Stone Association and its nearly 500 corporate members representing some 80 percent of the total production of crushed stone in the United States support the Mineral Institutes program and urge that the proper funding and appropriations be approved to keep this effort viable. It is indeed a valued national asset.

THURSDAY, MARCH 8, 1990.

DEPARTMENT OF ENERGY—CONSERVATION RESEARCH

WITNESS

LIZA BOWLES, VICE PRESIDENT OF OPERATIONS, NATIONAL ASSOCIATION OF HOMEBUILDERS/NATIONAL RESEARCH FOUNDATION

Mr. ATKINS. Next is Liza Bowles, National Association of Homebuilders.

Ms. BOWLES. Mr. Chairman, I'm Liza Bowles, vice president of operations for the NAHB research center. We're the technical arm of the National Association of Homebuilders. We have offices and a laboratory located in Upper Marlboro, Maryland.

We're here today to talk about the fiscal year 1991 appropriations for energy conservation, research, and technology. The foundation has played a major role in research and development of energy-saving technologies and products for the home. For nearly 30 years, the foundation has been in the forefront of assisting the building industry and producing more cost-effective, energy-efficient homes and apartments.

Federal agencies, and particularly the Department of Energy, have played a major role in promoting energy efficiency. DOE's leadership in the fields of conservation, energy efficiency, solar and other reusable energies has been notable, but DOE must do substantially more in the areas of research, demonstration, and information dissemination in order to realize significant energy savings in housing.

We were pleased with the Administration's request for increased funding for energy conservation research and development. We're also pleased with the administration's request to combine solar energy and conservation research into a single building technology program.

In addition, the Administration's proposed increase in funding for technology transfer recognizes the importance of advanced housing technology programs. This is an area where DOE has supported a fledgling program with the National Association of Homebuilders and the Research Center in looking at how technologies can more quickly be adopted into the housing area.

Specifically, what we're looking at is a program where, if we feel that if we can increase the rate of redoption by reducing the time for penetration from 10 years, which is about average in the homebuilding industry, to be at the 50 percent penetration mark, to 8 years, you about double the rate of return for the investor. If we can proceed with this program, we feel that we can get a lot more private companies investing in research, and we feel that it's an important area for DOE to support, and we support expansion in that area.

It's widely recognized by NSF, OTA, and others that there's been a serious underinvestment in building research as compared with research in other major U.S. industries. We urge you to consider an expanded effort in building technology research in fiscal year 1991 and a sustained long-term effort in this area.

We at the foundation acknowledge the interest of the subcommittee in energy conservation and your support of building technology. We stand ready to assist you in developing and implementing an energy research program which will result in cost-effective, energy-efficient homes.

Thank you.

Mr. ATKINS. Thank you very much. We appreciate the work of the NAHB, and particularly your work on the SMART house. I think it's going to be a significant national contribution, and it's deeply appreciated by the committee.

Ms. BOWLES. Thank you.

[The prepared statement of Liza Bowles follows:]

STATEMENT OF

THE NATIONAL ASSOCIATION OF HOME BUILDERS

before the

INTERIOR AND RELATED AGENCIES
SUBCOMMITTEE

HOUSE APPROPRIATIONS COMMITTEE

U.S. HOUSE OF REPRESENTATIVES

on

DEPARTMENT OF ENERGY
FY 91 APPROPRIATIONS

Mr. Chairman and Members of the Subcommittee:

I am Liza Bowles, Vice President of Operations of the National Association of Home Builders (NAHB) National Research Foundation. The Foundation, which is a not-for-profit subsidiary of NAHB, has offices and a laboratory located at the NAHB National Research Center in Upper Marlboro, Maryland.

I am pleased to appear before you today, on behalf of NAHB, to discuss the important issues of FY 91 appropriations for energy conservation research and technology.

Mr. Chairman, the Foundation has played a major role in research and development of energy-saving technologies and products for the home. We have performed cooperative research and studies with industry, prepared numerous educational materials and manuals for homebuilders and homebuyers, developed and promoted voluntary energy conservation guidelines which have been widely accepted, developed prototype energy efficient residences, and developed monitoring and measuring techniques for determining the contributions of passive solar designs and related energy conservation and renewables research. In short, for nearly thirty years, the Foundation has been in the forefront of assisting the building industry in producing more cost-effective energy efficient homes and apartments.

One of the most exciting series of innovations we are working on is the development of SMART HOUSE. By the time it is brought to market, it will represent over a $100 million effort by NAHB, the Research Foundation and a number of participating manufacturers and utility companies. Some smart-ready homes will be under construction during the fourth quarter of this year, and by the third quarter of 1991 all components are scheduled to be available for SMART HOUSE production.

It will move the distribution and control of energy in homes into the 21st Century. Small diameter, flexible gas lines and quick connects and disconnects providing existing opportunities for the use and control of natural gas. The wiring system and controls will be entirely new. Energy-related opportunities include load management, peak sharing, reduction of heating and cooling energy use, automatic duct air flow control for zoning, uninterruptible power supply, and time-of-day use savings. Depending on what the SMART HOUSE is compared to, it may be possible to save up to as much as one-fourth of the total cost of energy. Currently our research and development work is concentrating on hardware and software for new housing, but this will be quickly expanded to systems for existing housing and for new and existing light commercial and industrial buildings.

Mr. Chairman, we share your views on the importance of developing a comprehensive national energy strategy. We believe that the residential construction sector of our economy should accept the responsibility to achieve cost-effective energy efficiency, along with all other key sectors of the economy. An essential part of this effort should be a national commitment to research, development and implementation of cost-effective energy saving products and building techniques for new construction and for retrofitting existing buildings. On the supply side, the strategy should support:

- Public and private research efforts to develop nonpolluting renewable energy technologies to reduce the nation's dependence on fossil fuels and imported foreign oil,
- Environmentally sound exploration and development of all cost-effective domestic energy resources, while encouraging a national move toward alternative energy sources, and
- Public-sector incentives and private-sector initiatives that foster utilization of all proven and cost-effective energy sources.

Regarding improvements in energy end-use and specifically in the building sector, the strategy should recognize and support the fact that energy efficiency improvements in housing can and should be accomplished largely by the private sector in a partnership creating cooperation among builders, product suppliers, utilities, realtors, appraisers, mortgage lending institutions and government, and by properly and fairly recognizing national buyer and lender benefits of voluntary programs. Encouragement of broader development of these programs will result in higher levels of energy efficiency on an equitable basis. These programs, that will encourage and support higher ratio loans based on energy efficiency of new construction and a uniform energy efficient mortgage program for existing housing, with support from all appropriate federal agencies and an increased level of lender, realtor and consumer awareness, should lead to a more energy efficient housing stock.

At the same time, federal agencies, in particular the Department of Energy, have played a major role in promoting energy efficiency. DOE's leadership in the fields of conservation, energy efficiency, solar and other reusable energies has been notable. But DOE must do substantially more in the areas of research, demonstration and information dissemination in order to realize significant energy savings in housing.

Federal agencies can also play a major role in energy efficient affordable housing by recognizing and supporting industry programs that are specifically designed for local climates and housing markets. Government support of industry-sponsored voluntary programs to improve energy efficiency and a uniform energy efficient mortgage program will accomplish the goal of higher energy efficiency for all housing. In addition, such a program will also establish an education system and an ongoing network for continual transfer of newly developed information. Better information in the hands of the user leads to an atmosphere that fosters more creative solutions to providing more energy efficiency. A necessary role of government is to remove barriers to the more rapid adoption of new energy saving products and technologies.

Regarding FY 91 DOE appropriations, we are pleased that the Administration has requested increased funding, although modest, for energy conservation research and development in the building area. We also are pleased with the logical proposal by the Administration to combine solar energy and conservation research in the building area into a single building technology program. In addition, the Administration's proposed increase in funding for technology transfer recognizes the importance of advanced housing technology programs. NAHB supports making research and development in housing a higher priority by expanding the federal programs that promote such research.

Mr. Chairman, we are convinced that research efforts of DOE need to be long-term, sustained and funded at sufficiently high levels to promote results in terms of energy savings.

Let me be very straightforward. There is no profit incentive in selling less. In short, most of the residential research on energy that needs to be done to benefit the nation will need to be funded by the government. Some of it is highly specialized and is best performed in certain kinds of laboratories and highly technical facilities, but all of it needs to be done with an eye to the practical application of cost-effective techniques that are marketable.

This is not the time to detail a specific research agenda for energy research and development. Certainly, efforts to analyze acceptance of new technologies by the housing industry, evaluate and select cost-effective technologies, and speed the adoption of technologies are essential to promote innovative technologies.

Research to find out how to most cost-effectively perform energy retrofit on the existing housing stock, including what barriers need to be removed and what incentives, if any, need to be provided, may provide one of the largest opportunities for reducing residential energy use. In addition, government research to cost-effectively energy retrofit federally subsidized housing has a large energy-saving potential.

More research is needed on occupied whole house performance, with special attention to the question of systems integration. Too frequently, research on parts or pieces of the home is done without consideration of the relationship of one technology to another in the occupied home. This should give better information to what happens in the retrofitted home as well as for new homes.

Mr. Chairman, there has been a serious underinvestment in building research as compared with research investment in other major U.S. industries. We urge you to consider an expanded effort in building technologies research in FY 91 and a sustained, long-term effort in this area. We at the Foundation applaud the keen interest of the Subcommittee in energy conservation and your support of the building technology area. We stand ready to assist you in developing and implementing an energy research program which will result in cost-effective energy-efficient homes. Thank you for the opportunity to testify before you today. I would be pleased to answer any questions you may have.

Mr. ATKINS. For the people who could not appear before the subcommittee today, their statements may be made part of the record.

[Statements follow:]

Testimony Before The
Subcommittee on Interior
Committee on Appropriations
House of Representatives

March 8, 1990

The Stirling Engine
Environmental Characteristics

Presented By:

Bob Lawrence

In Support of

Mechanical Technology Incorporated

The Stirling Engine

Environmental Characteristics

Mr. Chairman and members of the Subcommittee. For many years, you have been hearing about the Stirling engine. If I am not mistaken, this is the twelfth year that someone from MTI has appeared before you to talk about the engine and its promise. It has been a long and frustrating experience, but successful R&D takes a level of tenacity that exceeds anything else I have ever experienced. I remember the story of Dr. Sikorski, the inventor of the helicopter. He failed 300 times before he was able to get one to fly and stay in the air; but what a contribution to humanity he has made. Tenacity is what I would like to talk about today. Why should tenacity concerning the Stirling engine be important? Consider the following analysis:

Under Provisions Relating to Mobile Sources in the Clean Air Amendments, the President proposed the following emissions standards for passenger cars:

NOx - 1.0 gm per mile (1992) going to 0.7 gm per mile (1995)

Hydrocarbons - 0.41 gm per mile going to 0.25 gm per mile

CO - 3.4 gm per mile

Light Duty Trucks have higher limits of .41 to .50 gms per mile hydrocarbons, and 4.20 to 5.50 grams per mile of CO. At 20 degrees Fahrenheit, the limit is 10.0 gms per mile for CO.

In the Fall of 1988, a light duty truck (Dodge D-150) equipped with a Stirling engine was tested by independent laboratories in Denver, Colorado and at Southwest Research Institute, San Antonio, Texas. Operating on unleaded gasoline, this truck achieved the following emissions levels:

NOx - .78 gms per mile highway

Hydrocarbons - .005 gms per mile highway

CO - .12 gms per mile highway

CO at 35 degrees F - 2.1 gms per mile (expected to be 3.5 at 20 degrees F)

Using the 3-phase Federal Test Procedure, which requires a cold engine start followed by urban and highway driving cycles, the Stirling truck achieved the following results on unleaded gasoline at Southwest Research Institute:

NOx - .77 gm per mile

Hydrocarbons - .14 gm per mile

CO - .70 gm per mile

As may be seen in the above independently determined values, the Stirling is already dramatically below the President's initiative in CO and hydrocarbons, below the 1992 goals for NOx, and very close with respect to the 1995 requirements for NOx. All this, using unleaded gasoline and without a catalytic convertor. And improvements continue to be made.

The White House Press Announcement of June 12, 1989, regarding the Clean Air Act Amendments, put the cost of meeting the President's mobile source goals at $3 4 Billion (page 8), by radical changes in fuels infrastructure and engine materials and designs. Since that time, the estimates have reached $20 to $40 Billion per year. The Stirling engine, after $130M in development costs, has already achieved much better results than the President's goals in CO and hydrocarbon emissions. NOx emissions are well under the President's 1992 goals and very close to the President's 1995 goals.

In addition to the above, the Stirling truck has demonstrated the capability to run on a multiplicity of fuels, interchangeably, without any noticeable change in performance. This experimental truck has now gone 22,000 miles (1205 hours) with a 94% availability factor.

The possibility exists that Stirling technology can be commercialized in the near term, saving billions of dollars in infrastructure changes, and attaining a cleaner environment than the President's plan envisions. The incentive contained in the 1990 HUD Appropriations Bill, under NASA/Technology Utilization, is a key starting point in this process.

During the past year, we have been through one more experience which would sorely try normal men, but I am convinced that the Stirling team is not normal. Nobody normal would put up with the stops and starts, the ups and downs of the past 12 years, and still stay on with the purpose of achieving the Stirling ideal.

In the past year, $3M was appropriated to do environmental demonstrations. Interested parties approached MTI with the potential to cost share. NASA elected not to spend the money, and launched a 6 month study. The study is needed, but the interested parties have now decided to wait until NASA and Congress act.

I hope MTI can get them back when the study is finished.

At this point in time, I watch the evening news and see the President and others talking about the $20 Billion to $40 Billion per year which it will cost to modify spark ignition engines and change fuel infrastructures to meet the emissions goals, when our Stirlings have already done it. Not only that, but our Stirling engines do it without catalytic convertors, and they don't appear to degrade with time like spark ignition engines.

Mr. Chairman, we told you that we would no longer request funding for this program, and we are holding to our promise. I just hope that NASA (with demonstrations) and DOE (with supporting R&D) can understand the promise of what we have while we still have the tenacious people. Thankyou for the opportunity to present this testimony.

BEFORE THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

Subcommittee on Interior

and Related Agencies

March 8, 1990

Hearing on the FY'91 Appropriations
for the U. S. Department of Energy
State and Local Assistance Programs

Testimony of

Sara Ward, Chief, Ohio

Home Weatherization Assistance Program

On Behalf of the Honorable Richard F. Celeste, Governor
State of Ohio

Mr. Chairman, members of the Subcommittee, my name is Sara Ward. I am employed as the Chief, Program Manager of the Ohio Home Weatherization Assistance Program (HWAP), in the Ohio Department of Development (ODOD). I have held this position since September of 1979.

I wish to express my sincere thanks to you, Mr. Chairman, and the Subcommittee, for providing me with the opportunity to share some information about the benefits, approach and impact of the weatherization program in Ohio and its future potential. I respectfully ask the Subcommittee to give its full support at a minimum, to continued appropriation and if possible, increased appropriation of Weatherization and all of the State and Local Assistance Programs (SLAP).

Ohio has a long history of supplemental support for this program, even before the "new federalism" of the Reagan years. From 1979-1982 with $8.5 million in state funds, we hired and trained a supplemental labor force to provide a more qualified and better paid professional labor force than was possible with CETA. With the first Home Energy Assistance Program (HEAP) Block Grant to Ohio, the Ohio legislature was the first in the country to pass a law mandating that the maximum allowable transfer of 15% of the HEAP Block Grant go toward supplementing the weatherization assistance program. Since the first oil overcharge funds were available to the state, Governor Celeste set aside over $70 million in oil overcharge funds to support the growth and development of the weatherization program.

By March 31, 1990, Ohio's HWAP will have received a total of nearly $294 million from all sources to provide weatherization services, job training, program technical development, program evaluation, and oversight and administration. The breakdown by source is:

40% - U.S. Department of Energy -	$118.4 million
38% - U.S. HHS (15% Block Grant) -	$111.0 million
19% - Petroleum Violation Escrow (PVE)-	$ 56.0 million
3% - State Supplemental Labor -	$ 8.5 million

With these funds since 1977, we have weatherized well over 150,000 low-income households. In addition to the direct funding of Ohio's HWAP at the State level, Ohio's more than sixty local program providers have coordinated and leveraged their dollars with every program possible.

These agencies which are primarily Community Action Agencies (CAA's) and community based non-profits, coordinate with FmHA, housing rehab, utility funded weatherization programs, and other energy conservation and assistance programs to provide the most cost effective services possible.

Just as the U.S. DOE funds are the mainstay of Ohio's HWAP, HWAP has been the main building block for most of the community based energy conservation programs that are now available to low and moderate income Ohioans.

On behalf of Ohio's program I want to express our sincere gratitude to this Subcommittee and Congress for not having turned your back on this program over the last decade. We are on the front lines and we know how difficult it has become to get the public's attention about energy conservation. Over the last decade, Congress has restored funding to the weatherization program in the face of complacency and abandonment. For years we have been told not to worry since we have Oil Overcharge funds to provide these services. Now it's time to tell the rest of the story.

Up until 1989, there were many states using PVE monies to cover the sustained federal cuts in DOE funding. In addition many states, like Ohio, took advantage of some or all of the 15% transfer from the Low Income Home Energy Assistance Program (HEAP). The fact is that because of the incredible need for these services nationwide, states supplemented the weatherization program by over 68% to reach a $500 million program in 1988.

However, nationally, because of nearly a decade of federal funding reductions in these programs, Oil Overcharge or PVE funds which were designated for weatherization are nearly gone, and most states can no longer afford to transfer LIHEAP dollars to weatherization due to sustained cuts in that program.

Some would say we've been luckier than most, and particularly in Ohio, we know that. Let me assure you that with this comes a tremendous sense of responsibility to get the most of every public dollar invested. We do this by running the program like a business. Our success is measured in terms of energy savings, but there are many other side benefits for the investment of these dollars.

First it is helpful to understand the environment that this program is administered in at the state level; because, without this environment, our success would not have been nearly as great.

Ohio operates its weatherization program through its Department of Development (ODOD), Community Development Division. The Community Development Division houses:

- The Community Services Block Grant (CSBG) which provides core funding to community action agencies (CAA's)
- The Community Development Block Grant (CDBG) which provides community development and housing rehabilitation funds to small cities,
- The Office of Energy Conservation which implements SECP, EES and ICP,
- The Home Energy Assistance Block Grant which provides assistance to low-income Ohioans in payment of their energy bills,
- And the newly formed Office of Housing and Community Partnerships dealing with homeless prevention.

What unites CDD programs with the more business-oriented divisions of ODOD is our common goal of building healthy communities, whether that means financing the expansion of an auto plant or providing weatherization assistance.

Having all of the federally-funded energy programs under one roof has been a tremendous advantage. These programs fund many of the same local providers which has allowed us to coordinate many of our administrative policies and maximize the benefits of the public dollars invested.

For example, each year the weatherization program operators are provided lists of households that participated in the Home Energy Assistance Program. The HEAP lists help to eliminate costly outreach efforts and also help to target elderly households and households with high energy bills. Recently, the Public Utilities Commission of Ohio mandated the utilities to also provide lists of their customers on Ohio's Percentage of Income Payment Plan (PIP) to the State Home Weatherization Assistance program.

Each year, nearly 200,000 customers participate in Ohio's PIP program and over 500,000 households receive assistance from HEAP. These programs, in a most humane way, make it possible for many low-income Ohioans to keep from freezing because of their inability to pay for heating services. But everyone acknowledges the need for the long-term solution that weatherization provides. Many low-income households' energy bills represent more than 20% of their annual income.

Cleveland State University recently completed a study prepared for the U.S. Department of Health and Human Services of what the factors are that influence how Ohio's low-income households use and pay for their energy needs and what can Ohio's energy programs do as a system to modify and reduce the level of debt faced by these households. The findings clearly suggest that the needs of the high-debt or high arrearage households may be best served by weatherization and energy conservation education.

Ohio's program has long recognized the benefit of client/consumer education. Nearly half of our local providers now perform one-on-one client education along with the weatherization services they receive. These "consumer educators" explain what weatherization services will be provided, how to maintain them over time, and empower the low-income clients to use better judgment and energy conservation behavior to realize even greater reductions in their energy use. Initial results of studies of these efforts show increased potential savings in conjunction with savings realized by weatherization of nearly an additional 7%.

In 1986 site built, single family, natural gas heated homes weatherized in Ohio were showing an average annual savings of 20%. At 1986 fuel prices this averaged $191 dollars per household. While we were pleased with these results we were not satisfied that it was the best we could do. The same study which measured those results also suggested that by focusing our material dollars on insulating sidewalls and attics and minimizing the dollars spent on air leakage work we could realize our greatest savings in envelope measures. Ohio's Weatherization Skills Training Centers began teaching the use of diagnostic equipment, called Blower Doors, to focus air leakage work on the most obvious and cost effective areas of the home. We also became more sophisticated in testing furnaces.

Furnace repair and replacement programs were created in many areas of the State as a result of other energy conservation programs funded through SECP and utility funds leveraged by the local HWAP providers. Some of our local HWAP providers became highly sophisticated in furnace inspection and installation work. I'll never forget one story I recently heard about a single mother with infants and small children living in a small one-story house in rural Ohio. The local agency inspector ran some tests and found high concentrations of CO entering the living area due to a cracked heat exchanger. When it was explained to her how dangerous this was and what was needed to correct the problem, she explained that it was no wonder her baby had been so lazy and sleepy so much of the time. We hear stories like this over and over again, of people claiming that their headaches and sickness have disappeared since they received weatherization and furnace replacement services. And as a result of an increasing demand for this capability in HWAP, one of our newest initiatives in 1990 will be to demonstrate a small statewide furnace replacement program to learn about the impact on HWAP costs and efficiency. Yet we are faced with a hard reality in April 1991.

In Ohio in 1991, like the rest of the country, PVE funds will be seriously depleted. In the 1989 and 1990 program years, just under 50% of the funding came from PVE monies. PVE will be reduced from $18 million in 1990 to approximately $2 million in 1991. This will mean a 43% cut in Ohio's weatherization program, assuming federal funding remains at 1990 levels. This may even be true if weatherization is reauthorized at $200 million. Other changes such as the funding formula and incentive fund proposed in the language of the SLAP reauthorization bills appear to erode the gains for Ohio which would be realized in the higher proposed reauthorization level.

A 43% cut in funding will be a blow to Ohio's HWAP that will have far reaching impacts when you consider the following:

- Weatherization services provided during 1989 resulted in an estimated seventy one million pounds of CO_2 not released into the atmosphere as a result of an estimated savings of 517 billion BTU's. This is a significant reduction in the burning of fossil fuels, a leading contributor to the problem of global warming. This also plays a significant role in our ability to reduce our dependence on foreign sources of energy.

- During this same period, using an economic multiplier of 3 which is used for rehab programs, $39.4 million in HWAP funding generated more than $118 million in economic activity in our state. Nearly $10 million was spent directly on the purchase of weatherization materials, primarily from Ohio vendors and suppliers.

- HWAP employs about 1,000 people statewide. Most of these people have obtained professional technical training through Ohio's weatherization training centers. As a result of this highly skilled labor force and existing equipment capacity, energy conservation services to Ohio's low and moderate income population have been increased through coordination and leveraging of other resources.

- Most importantly, the majority of low-income Ohioans who received HWAP services during 1989 saw at least a $191 average reduction in their fuel costs and a twenty percent reduction in fuel usage while their housing was made safer, more comfortable, and more affordable. This means an estimated potential $3 million dollars of additional available income to those low-income clients to pay for food, clothing and other housing needs.

In Ohio, over the past decade despite declining federal resources, we built a capacity that we believe was justified and necessary in order to make a dent in the 600,000 eligible low-income households. In fact, we have served 25% of the eligible population and continue to focus our efforts on improving service delivery, cost effectiveness, and our ability to leverage private sector dollars. This would not have been possible without the stable funding provided through oil overcharge funds; and it will not be possible to sustain with a 43% cut in 1991.

Ohio, even at an increased appropriation of $350 million for HWAP, and continued support from the HEAP Block Grant will very likely experience a 25% cut. We believe that we can manage this cut through our continued ability to leverage private sector dollars. Advance planning and preparation will allow us to absorb over time these still significant reductions. But if we've learned anything over these past ten years, it is that stable funding is what it takes to foster positive growth and change. In 1990 with a proposed budget of $38.5

million, we plan to weatherize over 17,150 households in Ohio's HWAP. Ohio's current PY'91 projection, using a proposed $200 million reauthorization level and continued support from the HEAP Block Grant may still result in a significant cut so that less than $22 million will be available to provide service to less than 9,000 households. Our capacity to continue to improve and refine service delivery will be virtually eliminated.

In closing I'd like to say that whether or not it is a well known fact, weatherization assistance has been a significant player in the National Energy Policy arena. Give us the opportunity to continue that role, and we in turn will give you one of the best returns on public dollars invested that is possible. Mr. Chairman, and members of the Subcommittee, I thank you for your kind attention and invite you to ask any questions you may have now or in the future. I can be reached by calling the Office of Weatherization at (614) 466-6954. Your serious consideration of this request will be deeply appreciated.

Testimony of
Dianne R. Nielson, Ph.D.

On behalf of the Western Interstate Energy Board
Reclamation Committee

Concerning the Fiscal Year 1991 Budget Request of the Office of Surface Mining

to the
Interior Subcommittee, Committee on Appropriations
U.S. House of Representatives
March 8, 1990

The Reclamation Committee of the Western Interstate Energy Board, which represents the major western coal producing States, appreciates this opportunity to provide the Subcommittee with our views on the proposed budget for the Office of Surface Mining for Fiscal Year 1991.

The Reclamation Committee includes the directors of the State coal regulatory and abandoned mine reclamation agencies in the States of Colorado, Montana, New Mexico, North Dakota, Utah and Wyoming. Together these States produced 298 million tons last year -- 30 percent of the Nation's total production.

Regulatory Grants to States: States are the front-line of enforcement of the Surface Mining Act. The top funding priority for the agency should be Title V regulatory grants to States.

Western States support the President's proposal for increased funding for State regulatory grants. The Interior Department is correct when it says: "Funding for the regulatory grant program has been at the same level since 1988. The States have not received increases for fixed costs such as salaries, supplies, vehicles, rentals, etc. Therefore, it is increasingly more difficult for the States to enhance or maintain certain aspects of their programs such as the high level of inspections accomplished, and writing and submitting necessary program amendments."

Although the proposed FY 91 budget request is $1.6 million short of the amount States indicated is necessary to implement Title V of the Surface Mining Control and Reclamation Act, the Administration's request of $47.9 million for regulatory grants is a major step in the right direction.

Other aspects of the President's proposed budget, however, do not further the objectives of the Surface Mining Act and should be revised by the Congress.

Abandoned Mine Lands: The proposed cut in abandoned mine land reclamation grants is not justified. The Administration continues to contend that because State obligation rates are high, reduced appropriations will not curtail on-the-ground reclamation. This is plainly wrong. The obligation rate issue is a budgetary smokescreen.

The obligation rates OSM is quoting to justify reduced appropriations are anomalous and, in large part, the product of OSM's delay in allocating funds requested by States. In citing lower State obligation rates at the end of FY 89, OSM fails to note that it delayed the allocation of 20 percent or $30 million of the AML funds appropriated in FY 89 until September 28-29, one to two days before the end of the fiscal year. Indeed, OSM waited until the last six months of FY 89 to allocate $95 million of the AML funds. This type of budget chicanery may make the obligation argument look good in one quarterly report to Congress, but it hampers reclamation. When erroneous data is eliminated from OSM's summary of State obligation rates, the Association of AML Administrators concludes that only $185 million is unobligated at the end of FY 89, not $257 million as suggested in the President's budget. This represents a continuing decline in the unobligated balance, not an increase over FY 88.

If Congress agrees with the Administration's concern over State obligation rates, **western States would urge you to establish a performance standard for State obligation rates.** Further, Congress should direct OSM to adopt a policy to reprogram unobligated funds from States which don't meet the performance standard to States which meet or exceed the performance standard.

Congress needs to understand that reduced reclamation appropriations means higher administrative costs per dollar spent on the ground. As the attached table shows, reclamation grants have plummeted over the past several years, while the cost of the OSM bureaucracy to administer those grants has increased.

Finally, it is increasingly difficult to justify an extension of the abandoned mine lands fee beyond 1992, when the surplus in the AML Trust Fund keeps growing because of reduced appropriations. OSM forecasts a $642 million surplus accumulation in the fund by the end of FY 91. This is equivalent to almost six years of AML appropriations at the currently proposed level.

Western States urge Congress to appropriate $200 million for State reclamation grants in FY 91.

Agency Reorganization: The Office of Surface Mining is being reorganized. We have suffered through many reorganizations of OSM and we are concerned that this latest proposal, despite the best of intentions, will not work.

Generally, we respect the prerogative of the OSM administration to reorganize the agency. However, at the same time western States will be directly affected by the reorganization. We view the structure as similar to that implemented by former Interior Secretary Watt. That reorganization will complicate efforts to coordinate OSM actions on federal lands; it will further delay the agency's review of proposed State Program Amendments; and it will recentralize agency decision-making in Washington, D.C.

Under the proposed reorganization, western field offices, such as those located in Albuquerque and Casper, and the technical support services, located in Denver, will each report to separate assistant directors. Under such a structure, issues which involve both field offices activities, such as inspection and enforcement, and technical support services, such as permitting, will necessarily be decided in Washington. We are concerned that decisions will be far removed from those most familiar with local environmental conditions. Decisions should be made by OSM and State officials familiar with specific conditions, not by OSM management unfamiliar with the situation on the ground.

We understand the good intentions behind this latest OSM reorganization. If there are organization problems affecting OSM performance in the East, then changes may be in order. However, OSM's ability to support western State programs with timely, informed decisions which are sensitive to the different environmental conditions in the West should not be sacrificed.

We will monitor OSM's performance under the reorganization.

Applicant Violator System: OSM has recently entered into a settlement agreement with environmental groups concerning the agency's beleaguered Applicant Violator System (AVS). OSM has budgeted $2.9 million in FY 91 to implement the plethora of new requirements for the AVS. The budget proposal is inadequate. It fails to fully fund new requirements placed on the States as a result of OSM's settlement agreement.

The new costs imposed by the AVS settlement should not be passed on to the States because:

1. AVS is a federal system and new costs imposed by the settlement agreement are a direct result of OSM problems in adequately implementing the existing AVS;

2. Even prior to the litigation which gave rise to the AVS, western States conducted the required checks of violations by permit applicants under Section 510(c) of the Surface Mining Act; and

3. OSM should abide by the conditions (including 100 percent federal funding) of existing Memoranda of Understanding between the agency and the States under which States have been active participants in the AVS since its inception. Unilateral abrogation of existing State-Federal agreements is unacceptable, especially when one recalls that States were also threatened with loss of federal funds if they refused to sign the current MOUs.

The AVS system should continue to be funded in accordance with OSM-State MOUs currently in place.

Title V Research and Training: Under the Surface Mining Act, OSM has a responsibility to support effective State programs. Two essential ways to fulfill this responsibility are through research and training. These activities should be a high priority.

OSM has taken several commendable steps to fulfill its training and research responsibilities, notably the establishment of the Technical Information Processing System (TIPS) and the OSM training program. Congress has recognized the importance of training and research by explicitly funding State travel to training sessions and providing funds for needed research.

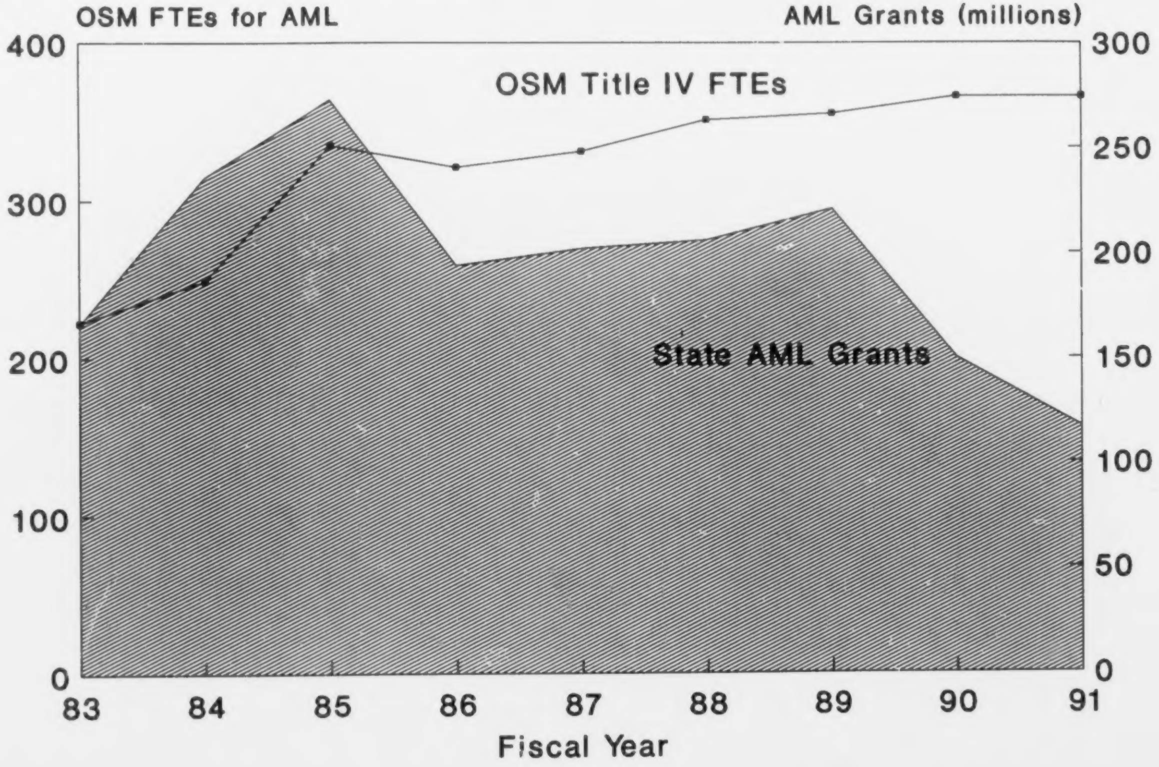
Over the past year, however, OSM has not kept pace with the States' need for more advanced training courses; nor has OSM acted to establish a State-Federal task force to direct Title V research in critical areas. Over the past year, no technical workshops have been held in the West to deal with common technical problems faced by OSM and the States.

The FY 91 budget proposal amplifies our concerns that OSM is not giving proper priority to these critical functions. It is our understanding that the Title V research budget will not support any new research initiatives in FY 91. OSM will only be able to continue research begun in previous years. Nor will OSM be able to fund studies similar to the federal land compliance studies of the past. Such studies have helped generate information critical to the leasing and regulation of federal coal.

Western States urge Congress to: (1) increase funding for new Title V research; (2) direct OSM to establish a Federal-State task force to guide the research priorities; (3) direct OSM to continue the federal land compliance studies; (4) direct OSM to conduct technical workshops in all regions of the country; (5) encourage OSM to develop more advanced training programs; (6) encourage OSM to continue to develop TIPS, one of the most valuable services OSM provides to States; and (7) continue to fund State travel to OSM training sessions.

Thank you for your attention to these recommended improvements in OSM's FY 91 appropriation.

AML Cuts Mean Continued Bureaucracy and Less Reclamation



TESTIMONY

OF

SHELL WESTERN E&P INC.

TO

SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
U. S. HOUSE OF REPRESENTATIVES

ON THE

DEPARTMENT OF THE INTERIOR'S
OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM

MARCH 8, 1990

This testimony is submitted by Shell Western E&P Inc. (SWEPI) in support of its plans to explore the Chukchi Sea offshore Alaska on leases acquired in a 1988 lease sale, and in defense of the company's ability to conduct its exploratory drilling operations in a safe, environmentally sound manner.

SWEPI was high bidder on 165 tracts in the Chukchi Lease Sale on which it bid alone and with partners. High bids by SWEPI and its partners totaled $390 million. Subsequently, SWEPI contracted with Canmar-Reading and Bates Joint Venture for its Explorer III drillship and three ice-breaking support vessels, and we contracted with Crowley Maritime for the retrofitting of one of its barges to provide oil spill response capability for our Chukchi Sea operation. The barge is equipped with the most up-to-date oil spill technology which exists. With this fleet and barge, we began exploratory drilling in July, 1989. During the 1989 summer season, we completed one well and began two others. The cost to SWEPI and its partners for this one drilling season alone was $79 million. We currently are retrofitting the fleet and barge in preparation for the 1990 summer drilling season.

Testimony has been presented before this committee suggesting that most U.S. outer continental shelf (OCS) areas, including those offshore Alaska such as the Chukchi Sea, be removed from consideration for oil and gas leasing and exploration. We believe this lockup of OCS areas is unfounded and not supported by thoughtful research on either the impact of oil and gas operations on the environment or on the impact of such a lockup on the energy future of the United States.

During testimony before this subcommittee on March 8, certain positions regarding the safety and reliability of offshore exploratory drilling were presented which are inaccurate or misleading. In particular, we call attention to the following statements:

Basis testimony from the Bering Sea Fishermen's Association:

1. "...the likelihood of a blowout at a well drilled in the Chukchi Sea is one in three."

> This statement seems to imply that there is a better than thirty percent chance that an exploratory well would blow out and result in a significant oil spill. The historical data base simply does not support this assertion, and, in fact, exploratory drilling on the OCS has one of the most exemplary environmental records in our industry. More than 9,000 OCS exploratory wells have been drilled without an oil-polluting incident.
>
> The documents upon which the above number was based reinforce our statement that exploratory well incidents do not result in oil spills.[1,2] These papers are using the term blowout to mean loss of well control. This definition includes incidents for which no oil pollution occurs. The data in Danenberger's article[1] graphically indicates that none of the incidents in OCS exploratory wells resulted in oil pollution. The reason f[illegible] this is

> that most loss of control incidents were caused by encountering gas zones. In such cases, the incident usually lasts less than three days, and is controlled by heavy mud or in many cases by natural bridging.[1]

2. "The technology to contain a spill and control a blowout in areas of ground fast ice and harsh conditions in these areas just simply does not exist."

> First, we are not drilling in an area of ground fast ice. We are permitting and drilling on tracts 80 to 120 miles offshore in water depths of 140 and 160 feet. But, to be as prepared as possible for any incident that may occur, we retrofitted a 400 foot by 105 foot barge with the most up-to-date oil spill cleanup technology that exists, including several sizes and configurations of containment booms, a fire containment boom, and, for the first time available in U.S. waters, a spill containment system developed for the cold water North Sea area. Extensive training was conducted during the course of the drilling operation last summer to ensure that all crew members understood and were current on the use of all such equipment. We will continue such training again this summer and every summer we conduct Chukchi Sea operations. On site last summer, we conducted a drill which demonstrated to the satisfaction of the MMS, Coast Guard, and various State of Alaska agency representatives that our spill response capability is appropriate and adequate to the tasks that we might encounter with an exploratory well.
>
> The Secretary of the Interior reexamined our oil spill plans at the request of the Governor of Alaska following last year's tanker spill near Valdez. As a result of this review, the Secretary assured the State that SWEPI's contingency plans meet or exceed regulatory requirements.

Basis testimony from the Natural Resources Defense Council:

1. "No further leasing or exploration should take place until oil spill containment and cleanup is shown to be effective under conditions experienced in the region..."

> As referenced above, we have demonstrated in Alaskan waters to the satisfaction of the MMS, the Coast Guard, and representatives of various State of Alaska agencies that we have taken extraordinary measures to ensure that we can contain and clean up an oil spill in the remote area in which we are working. Our plans have been examined and re-examined for their appropriateness and adequacy with regard to the problems we might encounter with an exploratory well, and they were found to "meet or exceed" regulatory requirements.

2. "No further leasing or exploration should take place...until the Academy's (National Academy of Science) national assessment of the adequacy of MMS' environmental information is released."

> We support the concept that good, adequate, scientific information should continue to be developed in order to provide information helpful in making decision regarding offshore operations. But that does not mean leasing and exploration should cease. More than 30 years of petroleum operations in the OCS have demonstrated that industry operations are compatible with coastal and marine environments. The OCS currently provides about 12 percent of domestic crude oil and 23 percent of domestic natural gas production, and it holds great promise for future discoveries. The U.S. Geological Survey estimates that the OCS contains another 35 billion barrels of oil. SWEPI's parent, Shell Oil Company, projects that approximately one half of all future domestic oil discovery volumes and at least one third of future domestic natural gas discovery volumes will come from the OCS.
>
> Delays, such as congressionally imposed leasing and drilling moratoria, seriously limit and delay the inventory and development of potential oil and gas resources of the OCS. Following the acquisition of a lease in offshore Alaska waters, several years are required for exploration drilling, with a limited number of wells possible to drill each year. Given a discovery of commercial quantities, several more years will elapse before the development phase starts. The time required from the development phase to the production phase may be as much as 10 to 15 years in remote offshore Alaska areas. Oil exploration is a long process; it should not be shut down without valid justification.

SWEPI suggests to the members of this Committee that we have applied ourselves to the terms of our lease stipulations for operating in the Chukchi Sea in good faith. We are confident of our ability to explore the Chukchi Sea in a safe, environmentally sound manner. We want to go forward with our plans for the next few years to determine whether or not there are commercial quantities of hydrocarbons in the area.

BIBLIOGRAPHY

1. Danenberger, Elmer P., "Outer Continental Shelf Oil and Gas Blowouts" Drilling-DCW, August 1980, pp. 43-50.

2. Martin, Frank B., Hooks, McCloskey & Associates, Inc. eds., The Probability of a Major Oil Spill From A Beaufort Sea OCS Exploratory Blowout.

Arkansas Association of Resource
Conservation and Development Councils, Inc.

Honorable Sydney R. Yates
Chairman, Subcommittee on the Interior
Room 308, Rayburn House Office Building
Washington, D. C. 20515

Dear Congressman Yates:

My name is Paul King and I am chairman of the Rural Abandoned Mines Reclamation Committee (RAMP) of the Arkansas River Valley Resource Conservation and Development Council (RC&D). My address is Hwy 22W., Charleston, Arkansas 72933

The Arkansas RAMP Committee has been advised that you and your committee will soon begin hearings regarding the FY-91 budget for the Office of Surface Mining. On behalf of the Arkansas River Valley RC&D Council and the Arkansas Association of RC&D Councils, Inc., I encourage you to provide funding for the RAMP for no less than $22.5 million.

A chart is enclosed which indicates the workload by state. Arkansas alone has 41 pending applications and a need for nearly $3 million in financial assistance. The national totals are greater with more than 850 applications awaiting funding. The chart indicates there are more than 400 additional applications where no cost estimate has been made.

The RAMP program is a very effective program in abandoned mines reclamation efforts! The Surface Mine Control and Reclamation Act, PL 95-87, authorizes up to 20 percent of the monies from the Abandoned Mine Reclamation fund be transferred to the RAMP program. Less than 10 percent of these funds have been transferred in past years. While I will not call for a full 20 percent transfer of funds at this time, I think it is time RAMP's potentials and actions are supported by lawmakers like you and your committee.

We want to get the work done and think $22.5 million is a reasonable start.

I regret that I am unable to testify before your committee but I do request that this letter be read into your records. Thank you for your consideration.

Sincerely,

PAUL KING
Chairman, RAMP Committee
Paul King

Enclosure

cc:
Senator Dale Bumpers, United States Senate, Washington, D. C. 20510
Senator David Pryor, United States Senate, Washington, D. C. 20510
Congressman John Paul Hammerschmidt, House of Representatives, Washington, D. C. 20515
Congressman Beryl Anthony, House of Representatives, Washington, D. C. 20515
Congressman Bill Alexander, House of Representatives, Washington, D. C. 20515
Congressman Tommy Robinson, House of Representatives, Washington, D. C. 20515
Charles Smart, Council Chairman, 615 South Main, Rm 218, Jonesboro, AR 72401
W. D. Looper, Council Chairman, 2801 Briarcliff, Fort Smith, AR 72903

STATUS REPORT
BY STATES As of (Jan 31, 1990)

	APPLICATIONS READY TO CONTRACT (within 30 days)		APPLICATIONS DESIGN UNDERWAY (within 6 months)		APPLICATIONS PENDING DESIGN AND/OR PLANNING		TOTALS	
	NO.	DOLLARS	NO.	DOLLARS	NO	DOLLARS		
AL	13	1,496,000	6	631,000	0	0	19	2,127,000
AR	24	1,084,500	17	1,631,000	0	0	41	2,715,500
IL	4	430,000	0	0	0	0	4	430,000
IN	5	67,400	5	55,465	8	59,342	18	182,207
IO	0	0	0	0	0	0	0	0
KA	1	330,000	0	0	25	3,872,650	26	4,202,650
KE	3	369,000	3	975,000	94	11,337,000	100	12,681,000
MA	1	452,000	0	0	0	0	0	0
MI	0	0	0	0	0	0	0	0
NO	0	0	0	0	32	2,135,500	32	2,135,500
OH	0	0	9	622,000	66	8,739,750	75	9,361,750
OK	0	0	1	50,000	73	8,820,000	74	8,870,000
PE	17	3,022,822	11	1,778,948	141	39,172,790	169	43,974,560
SO	0	0	0	0	0	0	0	0
TE	13	975,000	2	110,000	92	7,614,700	107	8,699,700
TE	0	0	0	0	0	0	0	
VI			1	51,920	41	17,742,655	42	17,794,575
WE	16	734,700	11	1,405,700	103	12,613,000	130	14,803,400
WY	0	0	0	0	13	500,000	13	500,000
TOTALS	97	8,714,422	66	7,311,099	688	112,607,387	851	128,632,908

The above chart includes financial assistance funds only. This does not include those 400 to 600 applications in district offices where no cost estimate has been made to date.

AGA American Gas Association

1515 Wilson Boulevard, Arlington, Va 22209
Telephone (703) 841-8621

Richard M. Irby III

March 9, 1990

Honorable Sidney R. Yates
Chairman
Subcommittee on Interior
Senate Committee on Appropriations
B-308 Rayburn House Office Building
Washington, DC 20515

RE: Subcommittee Consideration of Moratoria on OCS Leasing

Dear Chairman Yates:

The American Gas Association (A.G.A.) would like to take this opportunity to present its concern regarding your Subcommittee's consideration of moratoria on oil and natural gas leasing for large areas of the Outer Continental Shelf (OCS). We respectfully request that this short statement be included in the Subcommittee's hearing record on the FY 1991 Budget for the Department of the Interior.

The natural gas industry is especially concerned about OCS leasing policy because, contrary to popular belief, our nation receives more energy in the form of natural gas than oil from the OCS. Further, the OCS represents a significant portion of the domestic natural gas resource base. In 1988, federal offshore production was 4.5 Tcf or 27 percent of the national production. It is projected that this figure will remain the same for 1989. In addition, most new field discoveries nationally have come from the federal offshore in recent years. Year-end 1987 and 1988 data indicates that 69 percent and 51 percent, respectively, of all new field discoveries are from the federal offshore. By our estimates in 1990, natural gas energy produced in the lower 48 states will be expected to comprise some 25-30 percent of the nation's total energy mix for the long-term future.

Drilling for natural gas in OCS is an environmentally safe operation. Natural gas cannot "spill" as oil does. Moreover, because of modern exploration and production technology, such as directional drilling, the need for multiple platforms is greatly reduced. Further, stringent environmental stipulations, which are an integral part of the leasing process, ensure that the coastal and marine environment will be fully protected.

For these reasons A.G.A. urges the Subcommittee to support a common sense energy policy by refusing to renew and expand moratoria on OCS leasing. Reliable sources of relatively clean energy are crucial if our nation is to fuel a growing economy; promote the well-being of our population; improve the nation's environment; and avoid the insecurity associated with dependence on unstable foreign governments for our energy supplies. Because of the long lead time needed to find and place into production new offshore discoveries, it is vital that our OCS resources be developed as soon as possible.

The natural gas industry is dedicated to serving the citizens of this nation, and our industry wishes to continue to provide as much natural gas as possible in the future. We are dedicated to exploring and developing new sources of natural gas -- the cleanest of the fossil fuels -- in order to meet many of the urgent needs of our nation for years to come.

A.G.A. urges this Subcommittee and the Congress to allow our industry to fully develop the capability to serve the American people to the best of our ability. Ending the chain of OCS leasing moratoria is an essential part of any meaningful strategy for letting us do this important job.

Respectfully,

Richard M. Irby III

Richard Irby III

WRITTEN STATEMENT OF
THE ENERGY TASK FORCE OF THE
URBAN CONSORTIUM FOR TECHNOLOGY INITIATIVES
SUBMITTED TO THE
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON INTERIOR
BY
DEWAYNE HUCKABAY
CHAIRMAN, ENERGY TASK FORCE
MARCH 19, 1990

This statement is submitted on behalf of the Energy Task Force of the Urban Consortium for Technology Initiatives (ETF). The Energy Task Force is composed of members representing twenty of the jurisdictions that comprise the Urban Consortium, an association of the thirty-one largest cities and fourteen of the largest urban counties, by population, in the United States. The Energy Task Force is the nation's most extensive local government cooperative program to develop, apply, and transfer practical energy-related technologies and advanced energy management techniques in American cities and urban counties. To accomplish these goals, the Energy Task Force designs annual work programs for applied research and technology transfer to improve the diversity of energy resources and efficiency of energy use in local governments and communities as a whole. A principle focus of the ETF is the annual selection and funding of between twenty and thirty city and county energy projects. Each project supported by the Task Force must both respond to specific energy-related needs identified by local governments and develop and enhance local governments' energy expertise and capabilities.

Since the beginning of the program in the late 1970's, the ETF has successfully completed over 150 city and urban county energy projects in 36 different jurisdictions around the country. In addition to maintaining the commitment of the nation's largest urban areas to energy technology development and energy conservation, the ETF has been successful in encouraging private sector initiative and participation in many of these projects. Furthermore, every effort has been made to coordinate with other federal energy programs, especially those of the DOE-funded National Laboratories. ETF projects also demonstrate the Task Force's emphasis on broad-scale technology transfer and replication of successful projects.

The Energy Task Force's applied research, demonstration and transfer priorities for 1990 reflect the needs of local governments as well as national energy policies as fashioned by the Department of Energy. The four priority topics for the ETF's ongoing 1990 program are: electricity management; waste management; alternative vehicle fuels; and the relationships among energy, environment and economic development. The ETF has selected 32 projects within these topic areas for funding during 1990. Some recent ETF projects are described below.

- The City of Chicago has designed a project to assist other municipalities that wish to actively involve themselves in the Least Cost Utility Planning process. The principle underlying the Chicago project is that municipalities, because of their unique authorities and relationship to the market, can play a vital role in accelerating and improving the effectiveness of least cost planning. The project is addressing means to overcome particular problems often encountered: (1) how to initiate cooperative, as opposed to combative, activities with the utility and (2) how to structure a regulatory system for utilities which rewards utilities fairly for investments in conservation and alternative supply acquisitions.

- The City of Boston is examining the economic and environmental advantages of replacing large diesel truck engines designed for municipal solid waste collection/disposal with dedicated compressed natural gas engines. In a shared partnership arrangement between Mack Truck, Inc., Southwest Research Institute, Boston Gas Company, and Browning-Ferris Industries, the City of Boston's project is considering the following issues related to CNG use: (1) the potential for reduced emissions; (2) noise abatement for evening routes; (3) legal barriers to transportation of alternative fuels such as CNG through tunnels and some public roadways; and (4) the potential market for CNG engine technology.

- In New York and San Diego, studies are underway to define general siting and maintenance criteria for the development of alternative fuel filling stations in both cities. New York's project is a continuation of prior ETF sponsored work on alternative transportation fuels, which include methanol, natural gas, oxygenated fuel blends and electricity. The project will produce an assessment of options for the construction of fueling stations in New York City, including the options for public verses private ownership of fueling facilities for municipal fleet vehicles. San Diego's focus differs slightly, addressing the problems specific to that region: (1) siting for CNG and electric fueling and maintenance stations; (2) identification of funding requirements and opportunities; and (3) strategies for addressing regulatory constraints/requirements.

- The City of New Orleans' scrap tire recycling project is investigating the costs and benefits of locating a pyrolysis mass recovery plant in the New Orleans area for destructive distillation of approximately 1.5 million scrap tires annually. The project will be co-sponsored by the TecSon Corporation.

- The County of Pima, Arizona is planning and implementing an 800 acre showcase "Solar Village". This two year project is to be developed as a joint venture among the County, the State and private developers. The community will integrate natural site amenities, passive and active solar architecture, efficiency transportation, water conservation technology, and other techniques to support sustainable development. Key elements beyond purely technical design features include provisions for performance and site plan requirements, financial arrangements, and marketing strategies essential to support this resource-efficient public/private development.

o Hennepin County, Minnesota, is implementing Phase II of work begun during 1988 to identify less costly alternative methods for processing household hazardous waste (HHW). Hennepin County is developing a plan to establish a HHW processing center as an alternative method of handling this category of problem materials entering its waste-to-energy facilities. Controlling HHW disposal costs through local processing will be a key element to implementing a large-scale permanent collection program. Specific objectives of the project are: (1) to implement a pilot household hazardous waste processing center; (2) to monitor and evaluate the types and quantities of HHW processed, effectiveness of equipment used, and cost of implementing and operating the center; (3) to implement a household hazardous waste education and reduction program; and (4) to minimize the impact of Hennepin's exportation of HHW to other states by reducing the among of HHW transferred for disposal.

The projects described above illustrate how cities and counties can play an important role in solving national and global environmental and energy problems. National energy policy should have an urban focus, with the implementation of specific energy programs designed to maximize the creation of new jobs, while satisfying current federal, state and local environmental standards, and utilizing energy resources as efficiently and effectively as possible. An increased emphasis on energy conservation should be an important element of national energy policy, along with strengthening federal investment in research and development.

Viewed against these policy objectives, the DOE's FY 1991 budget submission is encouraging, particularly in its renewed emphasis on energy conservation programs. The ETF program is consistent with a number of DOE's priorities as reflected in the budget. For example, the Task Force member jurisdictions are particularly interested in the planned state and local cooperative efforts to be undertaken in conjunction with the alternative motor fuels demonstration project, and will be very interested in the activities of the U.S. Alternative Fuels Council.

With respect to the technology assessment and transfer subprogram, the ETF is itself dedicated to the concept of technology transfer that underlies DOE's efforts. The Task Force hopes to complement federal program efforts for the acceleration of near term conservation. The Task Force also will contribute to the strengthening of U.S. participation in the International Energy Agency's Center for the Analysis and Dissemination of Demonstrated Energy Technologies (CADDET). Recently, the results of two ETF projects have been accepted for widespread dissemination through CADDET, further signifying how the ETF's program has come of age and taken its place among leading U.S. energy technology development efforts.

The Task Force will also be making a concerted effort to encourage the transfer of low-income weatherization technologies consistent with the direction contained in the committee report accompanying the FY 1990 appropriations bill. In its forthcoming request for proposals for city and county energy projects, the Energy Task Force intends to give priority status to projects encouraging the transfer of low-income weatherization technology. The ETF continues to make recommendations to federal agencies about this program and the role the Energy Task Force can play to encourage projects which focus on weatherization issues. We look forward to working closely with the Department of Energy to meet shared objectives in this area.

The Energy Task Force is grateful for the support the Subcommittee has shown over the years for its local government energy technology program. Funding from the Department of Energy through the City of Chicago has enabled local government energy experts to make a very substantial contribution to energy planning and the development and refinement of technologies particularly appropriate for urban areas. The ten-year history of this program demonstrates the valuable contributions to be made by local officials acting through an organization managed by their peers to energy technology development and application. Funding for this program of $2 million in Fiscal Year 1991 would be used to continue support for energy-related needs identified by local government in large urban areas; foster cooperative technical and financial partnerships among local government, federal government, and private industry; and ensure the effective transfer of technologies and capabilities among these parties.

List of Energy Task Force member jurisdictions:

Boston, MA
Dade County, FL
Hennepin County, MN
Los Angeles, CA
New York, NY
San Antonio, TX
Seattle, WA
Broward County, FL
Denver, CO
Houston, TX
Memphis, TN
Philadelphia, PA
San Francisco, CA
Washington, DC
Chicago, IL
Detroit, MI
Kansas City, MO
New Orleans, LA
Phoenix, AZ
San Jose, CA

FRIENDS OF THE EARTH℠
Environmental Policy Institute
OCEANIC SOCIETY

TESTIMONY
OF
DON BARGER
OF THE
CITIZENS MINING PROJECT

BEFORE THE
HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR

REGARDING THE
FY'91 OSM BUDGET

March 8, 1990

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Washington, DC 20003
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foedc (EcoNet ID)

printed on recycled paper

Mr. Chairman, I am Don Barger, Coordinator for the Citizens Mining Project of the Environmental Policy Institute (EPI). EPI, which recently merged with Friends of the Earth and the Oceanic Society, is a global environmental research and advocacy organization. We work at local, national and international levels to influence public policy regarding adverse environmental impacts, and to empower citizens to have a voice in decisions that affect their environment. In the 1970's, EPI worked for passage of the federal Surface Mining Control and Reclamation Act of 1977 (SMCRA). Since passage, EPI established its Citizens Mining Project to oversee SMCRA's implementation and enforcement and to work with coalfield citizens to better understand and exercise their rights under the law.

With regards to the adequacy of the Office of Surface Mining's (OSM) FY'91 budget request, we offer the following concerns on several key issues.

ABANDONED MINE LAND FUND (AML) - We continue to be concerned by the chronic under-funding of the AML emergency program. OSM's ability to respond in a timely manner to AML related emergencies such as land and mud slides, subsidence cave-ins, and mine and coal refuse fires must be Title IV's highest priority. Nevertheless, for the past 3-4 years, the program has been so under-funded by OSM that they have continually run out of money half way through the fiscal year. This year is not expected to be any different. It is our understanding that as of March 1st, OSM currently has in the hopper several million dollars in AML emergency design work needed to abate current AML emergencies. However, OSM has only $1 million left for actual on-the-ground AML construction work. Once again, this will mean that some AML emergencies will be delayed until additional funding can be found.

It is true that when the money runs dry, OSM can reprogram additional emergency monies from other parts of its budget. When this has occurred in the past, reprogramming at best means long delays in on-the-ground response (up to several months) for emergency projects. In other cases, reprogramming has often been resisted by agency personnel altogether leaving serious AML emergency sites in limbo until public or congressional pressure is brought to bear on the Agency. Unrealistic budgets cause irresponsible delays that endanger people's lives. We recommend that the emergency program funding level reflect true needs generated by AML emergencies. One resolution method would be to average out the AML emergency funds actually expended over the last decade in order to establish a new practical operating funding level.

In addition, we request the Subcommittee to review the program's overhead costs. It is our understanding that out of the $9 million allocated last year for emergency work, up to $4 million goes just to cover program salaries and technical work in the Pittsburgh and Washington offices. That leaves only $5 million for actual reclamation work. This is an unreasonable overhead ratio. Cutting the overhead could alleviate some of the on-the-ground emergency budget shortages.

In the general AML area, we continue to be concerned with the inability and unwillingness of OSM to spend the AML reserves on AML projects. OSM's message each year is the same - less money for state AML grants, and no desire to fund the Rural Abandoned Mine Land (RAMP) fund. We urge the Subcommittee to direct the Agency to work more closely with the States so that the AML fund can be used in an expedient way to fulfill its mission - reclaim AML sites. We also urge the Subcommittee to once again restore RAMP to its proper and adequate funding level.

WEST VIRGINIA - As the Subcommittee knows, over the last several years, the West Virginia program has experienced severe problems in enforcing the law. One significant reason (but by no means the only) has been a chronic shortage of State resources and enforcement personnel. OSM has recently acknowledged this problem and offered to increase the State's 50% state regulatory grant if the State can make up the other half. The problem is complicated by the fact that Statewide, West Virginia is experiencing a severe budget crisis.

This week, the West Virginia State legislature passed a bill that modestly raises the State's special reclamation bonding pool used to reclaim bond forfeiture sites. There was language in the bill which defers a percentage of the increase to the State DOE for additional resources. While it is yet to be discerned if this will be an adequate amount for resources, or whether the State DOE will actually accept the monies, it appears to be a promising breakthrough in the State/OSM resource stalemate. We ask that the Subcommittee support OSM's matching state grant offer. The failure of the State to have adequate resources to implement and enforce its program holds serious ramifications to the future of West Virginia primacy. There is simply no way that the State can meet its statutory and regulatory requirements with its existing resource base.

This progress, however, should not overshadow the other serious problems that the State continues to have in running its program, any of which also holds dire consequences for the program's future. We encourage the Subcommittee to watch this program very closely.

OSM REORGANIZATION - It is our understanding that the Office of Surface Mining is currently implementing a reorganization that will reassign and realign agency personnel in headquarters, technical centers, and the field offices. While we have not seen the details of this plan and cannot, therefore, comment specifically, we do support and commend the concept of getting more employees out into the Field Offices.

We particularly support reexamining the role and staffing levels of the Pittsburgh and Denver Technical Centers, which in our experience have increasingly served in adding unjustified bureaucratic delay and unnecessary meddling in OSM field operation activities. We believe that the Act is better served by the placement of OSM oversight and technical personnel in the coalfields rather than the urban bureaucratic centers.

In the past, EPI has generally opposed previous reorganization plans that we believed were not initiated for this purpose. Rather, we believed that their intent was aimed at undermining OSM's field presence and rank and file morale.

We also strongly urge that any reorganization plan be implemented well within civil service protection requirements and with full consultation of Congress. In our opinion, past ill-conceived reorganization plans failed in these two critical areas as well.

Thank you for the opportunity to testify.

STATEMENT

Presented To

U. S. House of Representatives
Interior Subcommittee of the Appropriations Committee

In Support Of

THE U. S. DEPARTMENT OF ENERGY CONSERVATION RESEARCH AND DEVELOPMENT PROGRAMS

ADVANCED HOUSING CENTERS

By

Richardson Pratt
President
Pratt Institute
Brooklyn, New York

March 5, 1990

TESTIMONY ON
U. S. DEPARTMENT OF ENERGY
CONSERVATION RESEARCH AND DEVELOPMENT PROGRAMS

Presented To

**U. S. Senate
Interior Subcommittee of the
Appropriations Committee**

By

**Richardson Pratt, President
Pratt Institute
Brooklyn, New York**

Pratt Institute would like to thank the Committee for this opportunity to present testimony in support of the U. S. Department of Energy (DOE) Conservation Research and Development programs. In fiscal year 1989, DOE initiated a multi-year program in energy-efficient industrialized housing. The program, authorized under Public Law 101-218, is designed to stimulate innovation in the home building sector by assisting industry in developing highly energy-efficient and cost-competitive, factory-manufacturing techniques.

These building techniques and construction methods are already well developed in other countries, such as Japan and Sweden, where public sector funding for buildings-related research far exceeds that of the U. S. Not coincidently, these countries lead the world in housing quality. Further, in Sweden where factory-built homes account for 95% of all housing construction, the industrialized housing builders produce housing that far surpasses their American counterparts in energy performance. High quality and energy performance are responsible, in part, for the fact that last year 1 in every 15 Swedish homes were built for a burgeoning housing export market.

The advances in housing quality and energy performance pioneered in Scandinavia and Asia are inextricably linked to a strong commitment to housing-related research. As reported by the Office of Technology Assessment (OTA), the U. S. lags far behind countries like Sweden and Japan in construction-related research expenditures. Last year the Japanese building industry reinvested about 3% of sales income in research. Total construction expenditures in the U. S. were about 0.01% of sales, or about the same dollar amount spent by the razor blade industry! Continuation and expansion of the DOE housing-related research efforts is badly needed.

There are many factors that slow the rate of technology advancement in the U. S. and necessitate public sector support. The provision of shelter in this country is in many respects a local activity undertaken by a highly fractionalized industry with a vast number of participants, including landowners, builders, tradespeople, developers, architects, government officials, trade unions, lenders and real estate agents. The high capital costs of building, cyclical fluctuations in housing demand and the fact that most building organizations are relatively small, make substantial private sector research expenditures impractical. In addition, participants in the industry, including those involved in the development, construction and regulation of real property, typically lack formal education in basic areas of building technology. All of these factors contribute to the ten to twelve year period of time required for new and advanced building methods to diffuse into common practice.

Congress recognized the need for industrialized housing-related research and developmental efforts by directing DOE to create regional research centers. The DOE program currently includes two centers, one in the Northwest and one in the South. The centers work with the building industry in their region to research and develop innovative design methods, building ~~products and~~ manufacturing processes. There is now a critical need to expand this effort to the Northeast, where the housing industry is confronted with its own individual set of housing problems, research needs and opportunities for industrial development.

The region is unique with respect to the size and type of organizations that erect housing, the flow of materials, the regulatory environment, labor training and housing styles and preferences. With severe winters, harsh summers and some of the highest energy prices in the country, conservation is a particularly acute need in the Northeast. The Northeast is also faced with pronounced housing affordability problems as housing costs exceed the national average by 33 percent. In addition, promoting industrialized building practices in the Northeast can have a profound effect on the the regions endemic unemployment problems. In comparing conventional building practices to industrialized housing an OTA study stated, "Employees in such (industrialized housing) facilities could be treated more like workers in automobile factories than day laborers, enjoying continuity of employment, skill acquisition, and identification with the employer or firm." Finally, with major shipping ports on the Atlantic serving Western and Eastern Europe and direct access to the free trade market in Canada, the region is also a logical area for promoting housing exports.

To address these problems and take advantage of the opportunities, Pratt Institute and Cornell University have created a joint program of research, training and instruction. This Joint Venture for Advance Housing will work with industry to develop new and emerging energy conservation technologies for housing and speed their diffusion into practice. The Joint Venture will stress the adoption and utilization of industrialized housing methods and techniques. By our estimates, the application of advanced industrialized building methods and building processes can reduce energy expenditures in the Northeast by 30 to 40% relative to current consumption levels.

As a DOE designated regional research center, the Joint Venture would provide a nexus for concentrating the vast energies and talents of the regions building professionals, organizations and individuals on critical housing-related energy issues. In this region, providing a central focus is particularly important since the industry is fragmented into producing companies, product manufacturers and distributors, subcontractors and an array of specialty organizations. As a result, there is little direct connection between research, product development, construction and marketing. Any specific innovation could depend upon the chance meeting of minds of an architect or engineer who is aware of a new product or technique, a builder unafraid to use it, a supplier who has it at the right price, and tradesman who is willing to work with it. And, finally, it must be acceptable to a building inspector and attractive to the prospective home buyer.

By developing and promoting industrialized, or factory-built housing, home purchase costs can be reduced in the region by an average of 10 percent. This could translate into thousands of additional families each year who will be able to qualify for a mortgage. In addition, the lower energy costs will further improve the affordability of new homes. Improved energy-efficiency is one of the most effective and lowest costs strategies for stemming the production of gases associated with global warming and acid rain.

There are several barriers to the adoption of factory-manufacturing in the U. S. Consumers have been reluctant to buy factory-built homes because of their association with low-quality. Swings in housing sales make the financial investments in plant, engineering and equipment a high risk venture. In addition, the industry fragmentation noted earlier has made it difficult to conduct research related to improved factory manufacturing techniques. However, industrialization of the building process harbors opportunities for reducing energy and construction costs not possible with site-building practices.

Factory fabrication opens the door to a spectrum of materials and advanced building assemblies not feasibly implemented at the building site. For example, the construction of wall and window assemblies can be rethought if freed from the limitation that they must be able to be lifted and erected by a single worker in the field. In Sweden, most housing manufacturers now produce large wall sections of about 30 feet in length that are installed with a crane. The large components minimize the number of joints in the envelope providing a highly energy-efficient building skin. Also, the small number of large components allow the homes to be made weather-tight in 1 day.

A 4-year, $9 million program of regional research, development and training is needed to carry out the goals of the Northeast regional industrialized housing program. For the first year, the Joint Venture is seeking $1 million from the federal joint venture initiative authorized under P. L. 101-218 for which regional cofunding commitments have been identified. The program is designed such that, in subsequent years, the portion of industry support for this effort will increase.

Prior to federal funding of the regional centers, research to develop and disseminate innovations in industrialized building methods was nonexistent. We encourage Congress to continue the regional research program and expand the effort by creating a much needed third center in the Northeast.

Statement
of

Lieutenant Governor George H. Ryan
State of Illinois

Before the

Committee on Appropriations
Subcommittee on Interior
March 15, 1990

Chairman Yates and other distinguished Committee members, I am pleased that you have given me this opportunity to share my concerns about the proposed 1991 funding levels for abandoned mine reclamation grants.

As Chairman of the Illinois Abandoned Mined Lands Reclamation Council, I am dismayed that the President's FY 1991 budget designates a funding level for AML grants of only $117 million. This follows on the heels of a severe appropriation cut in 1986 and further reductions in subsequent years to a current low of $150 million.

Illinois' abandoned mine reclamation program has long been recognized as one of the most ambitious and productive in the nation. We are committed to timely, efficient reclamation. In the last two years alone, nearly 1,500 acres of land have been reclaimed; more than 42 open shafts have been filled; and, 5 hazardous highwalls have been eliminated. Our continued success, however, is dependent on sufficient appropriations.

By the end of September 1990, Illinois will have contributed approximately $174 million to the fund and received only $70 million in state-share monies and $30 million in discretionary funds. The $70 in state-share funds represents only 40.2 percent of the total collections and is nearly $17 million short of the guaranteed 50 percent return provided for by Public Law 95-87. Meanwhile, the AML fund currently shows an estimated $345 million surplus.

While we all recognize the importance of cut-backs in these deficit reduction years, these are dedicated funds which are not available for other uses. Consequently, limiting appropriations today only reduces the amount of reclamation that can be performed with tomorrow's inflated dollars. As you know, the unappropriated balance generates no interest for the AML fund.

In the past, low appropriation levels have been linked to the inability of many states to spend or obligate their funds at a satisfactory rate. While some states have had consistently poor obligation rates, this has never been the case in Illinois which ranks at or near the top among states receiving construction grants. While attempts have been made to justify reduced funding by indentifying the availability of unobligated funds from last year, this concept is without merit. Because of the allocation system used by the Office of Surface Mining Reclamation and Enforcement, such "carryover" funds remain available only to those states to which they were originally awarded. Consequently, the surplus of unobligated funds does nothing for Illinois which has scheduled and executed reclamation projects at a consistent, successful rate.

Congressional members should demand that the OSMRE include a performance factor or incentive in the allocation formula so that states with satisfactory obligation rates are not impeded by depressed appropriations. The current formula continues to pump discretionary money into states without regard to performance in grants management or obligation rates. If obligation rates are so important in the appropriations process, it seems prudent to make them equally important in the allocation of funds. To date, no guidance has been given to the states as to what obligation rate levels are considered satisfactory. If this were established, Congress could designate a certain portion of the appropriated funds as state share money, accessible only by those who achieve the prescribed obligation rate.

Continued funding reductions of the magnitude proposed for 1991 will continue to hinder the great progress that has been made in Illinois. For the past three years, we have been forced to delay millions of dollars in needed projects because our grants have fallen far below the anticipated and just levels. More than 9,700 other seriously-impacted acres remain in need of reclamation as well. This land contains public safety hazards and coal refuse piles which continue to pollute Illinois' streams and valuable farm land.

In conclusion, I urge you to increase the AML appopriation to $200 million, which is the level supported by the National Association of Abandoned Mined Lands Programs. This level will allow the states to effectively manage their programs and eliminate problem sites in a timely fashion. At the very least, we must be allowed to access the state-share monies which have accumulated. I assure you that Illinois' abandoned mine reclamation program is fully capable of administering a significant increase in AML funding. We hope that the job we have been given to do will not be further hindered by budget cuts. I thank you for the opportunity to present this testimony and for your consideration of this important issue. Thank you.

AARP

Statement

of the

American Association of Retired Persons

on the

Low Income Weatherization
Assistance Program

Submitted to the

Subcommittee on Interior and
Related Agencies

Committee on Appropriations

U.S. House of Representatives

March 22, 1990

Washington, D.C.

American Association of Retired Persons 1909 K Street, N.W., Washington, D.C. 20049 (202) 872-4700

Louise D. Crooks *President* Horace B. Deets *Executive Director*

The American Association of Retired Persons appreciates this opportunity to submit a statement on the Fiscal Year 1991 appropriation for the Department of Energy's Weatherization Assistance Program (WAP). This program is currently funded at $161 million. The administration proposes a 91 percent reduction to $15 million for FY 1991.

AARP believes there are compelling reasons for rejecting the Administration's request. These include the high percentage of income paid by low income households for energy, the potential cost savings for low-income households available through weatherization, the loss of supplemental financial resources such as Low Income Energy Assistance and oil overcharge funds to the Weatherization program, and the accumulated experience and capability of the WAP program. AARP supports a Fiscal Year 1991 funding level for the Weatherization program of $200 million and certainly no less than the level necessary to maintain current services.

The energy crisis never ended for many low-income and older households. A 1989 study by the National Consumer Law Center (Energy and the Poor - The Forgotten Crisis) found that low income households, on average, expend over 11% of their income on home energy--three to four times the percent for the typical American household. The report also noted that in 29 states and the District of Columbia, after paying energy bills, an older couple receiving Supplemental Security Income benefits had less than $100 per week for all other living expenses. In 39 states and the District of Columbia, SSI recipients living alone (over half of older SSI recipients) spent more than 20 percent of their income on energy, leaving $60 a week for other necessities.

Energy costs are especially onerous for older people because they are more likely to have low or moderate incomes than younger households. Moreover, 36 percent of the homes occupied by older households were built prior to 1940 compared to 21 percent of those occupied by younger families. These homes are typically less well insulated, more expensive to heat and in need of repair. Research by AARP's Public Policy Institute shows that older households, especially minority elder households, occupy the highest percentage of substandard housing among homeowners. For example, 43.5 percent of houses occupied by low income black elderly lacked central heating. Our study also showed that 59 percent of low-income older owners were unable to devote any funds to routine maintenance or improvements such as weatherization.

The weatherization assistance program has made a crucial difference for many of these older households. Just under one-third of the dwellings weatherized by WAP are occupied by older persons. A June, 1986 study by the National Association for

State Community Services Programs (NASCP) indicated that weatherization efforts have reduced home energy expenditures by about 13 percent for households receiving the service. When combined with Low Income Home Energy Assistance benefits, the home energy cost burden is reduced further, by an average of 36 percent.

The accumulated experience and capability of the WAP program now make possible even higher energy savings. DOE data indicate that for a significant number of eligible households, average annual savings of 25 percent or more are achievable. The Alliance for Energy has estimated that a 25 percent improvement in home energy efficiency would reduce overall housing costs by eight percent for low-income families, saving them some seven billion dollars annually. In addition, over one million low income families now expending excessive amounts of their incomes on housing would have their costs reduced below the 30 percent of income standard used as the federal standard for appropriate housing costs.

Emphasis in the WAP program with respect to methods used has evolved from emergency and temporary measures (such as caulking and weatherstripping) to inclusion of those conservation remedies that on average produce the highest savings (e.g. combined attic and sidewalk insulation). Personnel in the field are now much more experienced in determining which conservation techniques, under what circumstances, are most cost effective and save the most energy. These advantages, built up so painstakingly over the last few years, would be lost if the Administration's funding proposals were approved.

Continued funding of WAP is especially important in light of the recent and proposed reductions in the Low Income Home Energy Assistance Program and the reduced availability of oil overcharge funds. State LIHEAP funds devoted to weatherization have declined steadily from $220.4 million in FY 1987 to $172.5 in FY 1988 to an estimated $144 million in FY 1989. Similarly, the availability of oil overcharge funds is declining. Only 48 million dollars of the over three billion dollars in Exxon and Stripper Well funds remain unallocated. Any future overcharge funds awarded to the states are likely to come in much smaller amounts and be disbursed over extended periods of time (five to eight years). These alternative funding sources can no longer be relied on by the states.

It must be pointed out that oil overcharge funds are restitutionary in nature and were intended to supplement, not supplant, federal energy assistance programs. Although the states have used almost half of their overcharge funds for low-income programs, these decisions are entirely discretionary under the Exxon and Stripper Well decisions and there are wide variations in uses among states. Finally, the unallocated overcharge funds are completely insufficient to make up for the reductions in both LIHEAP and the WAP programs proposed by the Administration.

WAP has weatherized over four million homes. However, the need for weatherization services is great. DOE estimates that 15 to 18 million dwellings remain to be weatherized. With a capability of weatherizing approximately 250,000 dwellings annually, WAP is crucial to meeting this need.

The volatility of heating oil prices experienced this winter should give pause to anyone contemplating a deemphasis of the nation's weatherization effort. For the first time in several years, the DOE has predicted a steady increase in residential prices for the major heating and cooling fuels used by low-income households. AARP believes that we must maintain our efforts in weatherization both to assist low income families and to improve the energy efficiency of the nation's housing stock.

In conclusion, AARP urges the Subcommittee to support an FY 1991 funding level of $200 million for the WAP. We thank you for your past support of this program and look forward to working with you to ensure its continued success in serving low-income people.

JOINT STATEMENT OF

JOSEPH J. SOMMER, DIRECTOR
and
THOMAS M. BERG, CHIEF, DIVISION OF GEOLOGICICAL SURVEY

OHIO DEPARTMENT OF NATURAL RESOURCES
BEFORE THE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON INTERIOR

Mr. Chairman and members of the subcommittee, we appreciate the opportunity to testify in support of the U.S. Geological Survey (USGS) programs that directly affect Ohio.

As Director of the Ohio Department of Natural Resources and Chief of the Division of Geological Survey, we are responsible for the Ohio Geological Survey, one of the oldest natural resource agencies in the State of Ohio. Continually growing mineral resource and environmental concerns within the state place the Geological Survey under a great deal of pressure to address all of the geological issues affecting Ohio's citizens.

State geological surveys, like the Ohio survey, must rely on the cooperative efforts of the U.S. Geological Survey (USGS) to develop aggressive programs that compliment and augment the state programs. The Administration proposed FY 1991 appropriation for the USGS severely reduces or even eliminates a number of USGS programs. We strongly urge restoration of funding for these programs.

COASTAL EROSION

In particular, we would like to request the support of the subcommittee for a USGS and Ohio Geological Survey cooperative study of coastal erosion along Ohio's Lake Erie shoreline.

About 344 miles of Lake Erie's shoreline is in Ohio. The densely populated metropolitan areas of Cleveland and Toledo are spread along the coast. There are 4.5 million Ohioans living in the Lake Erie drainage basin; all are within a 2-hour drive of the shoreline. Hundreds of millions of dollars are invested in shoreline residences, recreational facilities, and industrial development. A single amusement park drew 3 million people to the lakeshore in 1989. Fishing and boating enthusiasts spend millions of dollars each year along the coast.

The costs of coastal erosion to this important resource are enormous. A single suburban/rural country estimated that erosion damage in 1985 alone resulted in losses of nearly $9 million to buildings, real estate values, shore protection, and real estates tax revenues. Total losses along the Ohio shore may have exceeded $100 million in 1985 alone.

Real estate values plummet as bluff erosion approaches a building. A house located 50 feet from the bluff is worth only about 25% of normal market value. Nearly half of the 5000 lakefront structures in Ohio are located within 50 feet of the bluff edge; nearly a quarter are 25 feet or less from the edge.

Over 95% of Ohio's shoreline is suffering from ongoing erosion; nearly 75% is classified as easily erodible. During an average year, fifty-foot-high till bluffs erode at a rate of up to 10 ft/yr, and a barrier beach can receded as much as 110 feet in one year. Erosion rates on this scale represent a significant hazard, yet development and redevelopment continued unabated.

Efforts to control erosion can be very expensive and may cause more harm than good. The geologic processes specific to Lake Erie that cause erosion have not been adequately quantified. These processes must be fully investigated and documented before efficient, economically-sound approaches to erosion control can be recommended.

The Ohio Division of Geological Survey's Lake Erie Section, based in Sandusky, Ohio, has been investigating coastal erosion and providing erosion information to agencies and the public for over 40 years. Unreplaceable baseline data gathered during this period is catalogued at the Section and provides background for historical shoreline changes; this knowledge base has resulted in over 100 publications. Much of this data was collected using ODNR's research vessel GS-1, which is the only vessel on the Great Lakes specifically built for geologic investigations.

Public demand for geologic information provided by ODNR's Lake Erie Section has tripled over the last decade and continues to increase. In an attempt to keep up with this demand ODNR has and will increase funding to the Lake Erie Section an average of $80,000 per year in its FY 90 and 91 budget.

Even with this increased funding, a staff of scientists specifically trained in coastal erosion, some of the best equipment on the Great Lakes Region and over 60 years of staff experience in Lake Erie erosion studies, Ohio's Geological Survey does not have the capacity to perform a comprehensive erosion study of the Ohio Lake Erie coast alone. A State and Federal partnership is essential. The objective of the U.S. Geological Survey's Coastal and Wetlands Processes Program is to implement such cooperative efforts between the Federal and State Geological Surveys, by integrating the capabilities of both organizations.

Since 1986, Congress has funded and directed the U.S. Geological Survey to enter into cooperative erosion studies with several states, including Louisiana, Illinois, Indiana, Alabama, and Mississippi. To initiate erosion investigations for Ohio, Congress must include language and funding in the appropriations bill directing the U.S. Geological Survey to establish a cooperative erosion study of the Ohio shoreline.

An effective coastal erosion investigation program for Ohio will consist of several interrelated elements. The complex, three-dimensional geologic framework upon which erosion acts must be determined. The dynamic, changing coastal parameters of water levels, winds, waves, currents, storms, ice cover, and sediment movements must be tracked for a significant period of time. With this database, detailed studies of representative sites can develop erosion processes models and mitigation methods that apply to the Ohio shoreline. Compilation and analysis of the large volumes of data requires computer-based mapping and development of a geographic information system. Finally, results and recommendations must be transferred to the public and other agencies.

The USGS and ODNR estimate the first year of the proposed five-year program will cost $2.3 million. Of this, $870,000 will be used for capital investment in modern equipment needed to collect data along the Ohio shoreline. Ohio personnel and field operations will require $764,000. Funding of U.S. Geological Survey scientists, who will spend much of their time in Ohio, will cost $166,000; indirect program costs are $540,000.

Succeeding years will not require large equipment costs. Average costs of $1.4 million per year for years two through five bring total program costs to $7.9 million. This is a small fraction of the total economic costs of erosion. By providing the information required for economically efficient mitigation on erosion, Ohio could realize savings many times greater than the cost of this cooperative program. The knowledge gained through this program will also benefit the other Great Lakes states.

COAL INVESTIGATIONS

Funding for the USGS Coal Availability investigations have been eliminated by the Office of Management and Budget. The Coal Availability has been one of the most successful programs of the USGS Coal Branch. It has involved cooperation with the state geological surveys of Kentucky, Virginia, and West Virginia, and the U.S. Bureau of Mines. Coal Branch planning included expanding the program into Tennessee, Pennsylvania, Ohio, northern West Virginia, Illinois, Indiana, and western Kentucky. Funding the Coal Availability program to a level of $3,000,000 would make the expansion possible. We urge restoration of the $1,000,000 line item for Coal Availability investigations, and we urge expansion of the budget to $3,000,000 to permit Coal Branch planning for central Appalachia to be carried out.

Another USGS initiative called the "National Energy Endowment Assessments" proposed by the Office of Energy and Marine Geology would provide an annual numerical energy availability reported prepared in cooperation with the state geological surveys and academic institutions. We urge restoration of the $100,000 line item for coal assessment under this proposed program.

NATIONAL GEOLOGIC MAPPING

The USGS and the Association of American State Geologists have been working together for nearly two years to establish a cooperative geologic mapping program that would significantly accelerate the rate of detailed geologic mapping of the nation. The present geologic map database in the U.S. is woefully inadequate to meet the growing needs of our citizens especially in the areas of environmental and land use planning and mineral resource development. A severe problems for the Survey is the shrinking income from a severance tax on mineral industries which is to be used for geologic mapping of Ohio's counties. The shrinking severance tax income is particularly striking because of the continued decrease in coal production in Ohio.

Our nation has become dangerously dependent upon foreign sources of critical and strategic mineral resources. In order to assess our domestic supplies of important mineral resources and fossil fuels, the USGS and the state geological surveys need to increase the rate of geologic mapping by more than a full order of magnitude. The USGS-state survey cooperative geologic mapping program called "COGEOMAP" is currently funding to a level of about $3 million. We strongly recommend an immediate increase for the COGEOMAP program to a level of close to $25 million in order to accomplish urgently-needed geologic mapping in Ohio and the nation.

REGIONAL AQUIFER SYSTEMS ANALYSIS

The Regional Aquifer Systems Analysis (RASA) of the USGS Water Resources Division is bearing much fruit in Ohio. This analysis includes western Ohio and eastern Indiana. It is our understanding that the RASA program will be phased out in the near future. We strongly urge that funding for the Ohio-Indiana RASA be increased in order to provide our citizens with a fuller understanding of the aquifer systems in a more expeditious manner.

The South Central Electric Vehicle Consortium
238 Wisenbaker Engineering Research Center
Texas Engineering Experiment Station
College Station, Texas 77843-3577

March 22, 1990

The Honorable Sidney R. Yates
Chairman, Subcommittee on the Interior
Committee on Appropriations
United States House of Representatives
Washington, DC 20515

Dear Chairman Yates,

Thank you for the opportunity to submit testimony for the record on behalf of the South Central Electric Vehicle Consortium for the hearing of March 8, 1990.

The South Central Electric Vehicle Consortium was formed on February 1, 1990, and is dedicated to the task of promoting the use and commercialization of electric G-Vans and other vehicles as they become available. We, like many areas around the country, have several non-attainment areas that require new approaches to problem solving and implementing solutions that have a lasting effect. Electric vehicles are a new approach and a lasting solution. Brief testimony that expands this view is enclosed.

Sincerely,

Dr. David H. Swan

Dr. David H. Swan
Director
The South Central Electric Vehicle Consortium

enclosure

Written Testimony
of the
South Central Electric Vehicle Consortium
before the
House Committee on Appropriations
Subcommittee on the Interior

March 8, 1990

This testimony is submitted for the record on behalf of the South Central Electric Vehicle Consortium. For several months we have been working to promote electric vehicle use and commercialization in the South Central Region of the U.S.; specifically, New Mexico, Oklahoma, Texas, Louisiana and Arkansas. This testimony will address the importance of the involvement in the Department of Energy's Site Operators User Task Force Program.

While the Los Angeles basin is infamous as an air-quality non-attainment area, other non-attainment areas will benefit from the information and involvement the Site Operator's Program can provide. However, this program needs additional budget support. The Department has requested $1 million for the Site Operator's Program for fiscal year 1991, an increase over the amount sought last year, but $360,000 under the 1990 funding level. We believe this amount is not sufficient to provide for cost-shared purchase and use of electric vehicles in many non-attainment areas, nor help foster the needed electric vehicle market to reduce auto emissions.

The South Central area of the United States has many non-attainment cities; most notably, Houston, El Paso, Baton Rouge, Eastern Arkansas, Dallas/Forth Worth and Tulsa. The primary cause of ozone and carbon monoxide non-attainment has been identified as emissions from mobile sources. Even though efforts have been made to improve our air quality through increased gas mileage, emission control devices and check stations, clearly, a lasting solution is needed if we are ever to be successful in meeting our air quality standards. The members of the South Central Electric Vehicle Consortium believe that part of that solution should include electric vehicles using proven technology.

The Consortium agrees with the subcommittee's language of the 1990 appropriation bill that the vehicles purchased should be used as marketing tools. The Consortium and the Department realize that a part of effective marketing is data-collection and data sharing. The Consortium is commited to performing both of these tasks.

The use of electric vehicles is not new to the South Central Region of the United States; however, past experience with these automobiles did not prove optimal. The rise and fall of Jet Industries, Inc. of Austin, Texas is well known as is their attempt to convert and commercialize over one thousand electric vehicles. Therefore, the Consortium favors a coordinated, national effort in electric transportation promotion over small, independent, isolated initiatives. The Consortium therefore encourages additional participation in the Site Operator's program within its own region and other regions across the nation.

The Consortium seeks to cost-share with the Department of Energy the purchase of fourteen electric G-Vans for demonstration in the South Central region of the U.S. and to provide valuable data to the Department and the manufacturer from the testing and evaluation in the hot, humid and dry weather that exists in the South Central area.

The South Central Electric Vehicle Consortium recognizes the support the subcommittee has afforded this technology in the past, and its commitment to the Site Operator's Program. It is through the efforts of Congress, the Administration, and the private sector, that electric vehicle markets can be established, thereby assisting non-attainment areas to achieve a quieter environment and cleaner air.

TESTIMONY ON
ENERGY EFFICIENT INDUSTRIALIZED HOUSING RESEARCH

by

Dr. John T. Moseley
Vice President for Research
University of Oregon

Submitted to
House Appropriations Subcommittee on Interior

I would like to begin by thanking the subcommittee for this opportunity to state views of the University of Oregon and the Florida Solar Energy Center of the need for energy research on industrialized housing. To continue this research, we respectfully request that the Subcommittee allocate $2 million of the Fiscal Year 1991 DOE Building and Community Systems budget for Energy Efficient Industrialized Housing research at the University of Oregon and the Florida Solar Energy Center.

In Fiscal Year 1989 Congress appropriated $700,000 for this project, out of a requested $1,000,000, for the first year of a proposed five year program. In Fiscal Year 1990, Congress appropriated $1,000,000 out of a requested $1,500,000. Funds requested for the subsequent years were: Year 3—$1,500,000; Year 4—$1,000,000; Year 5—$1,000,000. As the following testimony shows, progress towards the initial goal of evaluating existing energy efficient industrialized housing technology and transferring the most appropriate technologies into the construction of homes has proceeded at a remarkable pace. It is because of this progress and to assist us in taking advantage of immediate opportunities to put the work done so far into practical application that we request that funds not appropriated in Years 1 and 2 be made available in years 3 and 4, for a total request of $2,000,000 in Year 3 (FY 91) and $1,300,000 in Year 4.

Activities completed in Year 1 are summarized in a two-volume report entitled, "Energy Efficient Industrialized Housing Research Programs: FY 1989 Task Reports." A summary of this report has been made available to this subcommittee. The study concludes that U. S. housing could be both more affordable and more energy efficient if existing industrialized housing techniques were appropriately applied. In the current year, researchers are working on the best applications of these existing technologies, and on improvements that not only make the resulting homes more affordable and energy efficient, but more attractive to the consumer in other ways as well. Local and state level interest in this project has developed to the point that the opportunity already exists to put these technologies into practice through demonstration projects in both Oregon and Florida. Since planning for the Oregon projects is more advanced, I will describe them in some detail.

The University of Oregon, the City of Eugene, Lane County and the State of Oregon are developing funding in a total amount that could exceed $10 million for the immediate construction of energy efficient industrialized homes, built according to the best technologies identified in the research of this project to date. This funding is largely from within the State, and does not include the funding for research on energy efficient industrialized housing requested here. A description of the plan for construction, entitled the Lane County Innovative Housing Initiative, has been provided to the Subcommittee.

It is proposed to construct a variety of types of homes, utilizing several of the available and improved technologies. Types of dwellings constructed would include:

- Low-cost homes for purchase by low-income families, with subsidized loans
- Housing for University of Oregon student families
- Market-priced homes at the middle and upper cost levels
- Affordable rental housing, both market priced and subsidized

It is anticipated that construction can begin on approximately 200 energy efficient industrialized housing units by the Spring of 1991. The housing would be approximately evenly distributed among the categories listed above, and would utilize a variety of the most appropriate technologies. This housing would provide an ideal "laboratory" for the evaluation, improvement and marketing of industrialized housing technologies.

The rationale behind and the objectives of the Energy Efficient Industrialized Housing Program have been described in detail to this committee in previous testimony, and I will only briefly summarize them here. This program brings together the national goals of affordable housing, conservation of energy, and improved international competitiveness. Work already accomplished demonstrates the feasibility of constructing homes that are at least 25 percent more efficient than the strictest U.S. residential codes require, yet is less costly to construct than current homes. In order to reach this goal, however, it will probably be necessary to go through two or three cycles of design, construction, use, evaluation and improvement of actual housing units. Combining the Energy Efficient Industrialized Housing Program with the construction of actual marketed housing as described above provides the ideal mechanism for reaching this goal.

Funding of the University of Oregon/Florida Solar Energy Center joint project on Energy Efficient Industrialized Housing at the full requested amount of $2 million for Fiscal Year 1991 will allow this project to take optimum advantage of the rapidly developing opportunities to construct housing based on the principles of energy efficiency and appropriate industrialization. It will be crucial for participants in the project to be intimately involved in the choice of technologies and the design of the homes. It will be equally important for project participants to be able to monitor the construction process, to evaluate the homes after they are occupied, and to use the information obtained through these studies to improve designs and technologies so that subsequently-constructed housing can achieve higher levels of energy efficiency at lower construction cost.

In Oregon, due to the close working relationship between the University, its home city, Eugene, and county, Lane, and between these partners and the State of Oregon, an unusual opportunity exists to develop energy efficient industrialized housing in a carefully coordinated way. The proposed development will be very highly leveraged, with the $2 million requested here for research resulting in up to $10 million for the construction of homes based on the results of the research, and an additional $10 to $20 million in private investment to construct the manufacturing plants for the industrialized homes. This is an opportunity for immediate and direct transfer of technology from the University project to the private sector, combined with the opportunity to continue to work with the private sector to improve the technology.

The end result of this overall project will be the development of more affordable housing, contributing in a major way to energy conservation, and improving our international position with respect to foreign housing manufacturers. The opportunity to construct significant numbers of housing units according the the principles of this work has come much more quickly than anticipated, and leads to the strong need for full funding for the Energy Efficient Industrialized Housing project. We respectfully request that $2 million be provided for this project for Fiscal Year 1991.

RPM:D20
3/22/90

AMERICAN PUBLIC POWER ASSOCIATION
2301 M STREET NW WASHINGTON DC 20037 · 202/467-2900

Statement
# of the
AMERICAN PUBLIC POWER ASSOCIATION
Submitted to the
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
HOUSE COMMITTEE ON APPROPRIATIONS
FY 1991 INTERIOR AND RELATED AGENCIES APPROPRIATIONS
March 22, 1990

The American Public Power Association (APPA), the national service organization representing more than 1,750 local, publicly owned electric utilities throughout the country, submits this statement to the Appropriations Subcommittee on Interior and Related Agencies concerning FY 1991 appropriations.

DEPARTMENT OF ENERGY'S R&D AND STATE AND LOCAL ASSISTANCE PROGRAMS

Energy efficiency has improved greatly between 1972 and 1986. Since 1963, for example, energy use in the United States has increased only 8 percent while the gross national product increased 46 percent. Still, the U.S. is the world's greatest per capita user of energy -- substantially greater than the closest competition. Moreover, in the last few years energy use has increased rapidly and energy efficiency patterns are static.

State and federal programs, such as the Department of Energy's R&D and the State and Local Assistance Program, have helped stimulate a national trend toward energy efficiency. These programs, however, have been under attack by the Reagan Administration and now the Bush Administration. Although the current Administration has proposed a more reasonable budget than in previous years, the proposed increases are insufficient to stimulate a new national commitment to energy efficiency.

APPA is particularly concerned about funding of the State and Local Assistance Program. The Department of Energy has recommended $30 million in fiscal year 1991, an 86 percent cut in funding, of this amount only $15 million would be made available for grants, with the remainder dedicated to DOE program administration.

APPA is pleased that DOE has recommended increases in some areas of the conservation R&D budget; however, the overall program request is still $10 million lower than the FY 90 appropriation. More importantly, the cut comes at the expense of some very important long-term research programs. To fulfill the commitments pledged by the Department in January as part of the National Energy Strategy, DOE should be committed to a research agenda that promotes both short and long term projects.

The DOE funding of the Conservation R&D Program is fundamental to many of the technological advancements that have decreased energy use. Industry, in many cases, has not made a significant investment in R&D. Research in the building industry, for example, is roughly 0.001 percent of sales, while Japanese research budgets can be as high as 7 percent. DOE research projects have been major contributors to significant energy savings through the establishment of building and appliance standards, the development of new technologies such as low-E windows, the development of new methods of design, and DOE's dissemination of technical information on existing technologies.

In addition to adequately funding existing R&D programs, funding for new initiatives should be included in the FY 91 budget. Such new initiatives as retrofitting buildings for increased efficiency, improving light and space conditioning equipment, improving batteries for electric vehicles, and creating an energy end-use data and analysis center will contribute to a healthier, less costly energy future.

APPA recommends that the DOE Energy Conservation R&D and State and Local Assistance Program appropriations by increased to: 575 million in FY 1991, 685 million in FY 1992, and 820 million in FY 1993. The budget for the R&D portion would be $280 million in FY 1991, $310 million in FY 1992, and $375 million in FY 1993. The budget for the State and Local Assistance Program would be $295 million in FY 1991, $375 million in FY 1992, and $445 million in FY 1993.

These budget levels are essential to rebuild the nation's energy efficiency program that was severely cut during the eight years of the Reagan Administration and to jump-start another era of increasing energy efficiency.

FUEL CELLS

APPA continues to support increased funding for research on fuel cells for direct conversion of fuel energy to electric power. While fuel cells in small sizes have been operable for a number of years, problems with the forming and processing of materials used in their construction have held back the development of the larger sizes that would be needed for regular industrial or utility services. Some large-scale development is now being planned, but there is no question that basic material problems will account for the most severe limitations on the commercial feasibility of these large designs.

Fuel cells promise unique benefits to industrial plants and electric utilities. Fuel cells are clean, quiet, siteable in urban areas, and can be constructed in months rather than years. Their modular design may act to increase reliability and lessen financial risk by allowing "building block" expansion and shorter planning horizons. Unique operating capabilities include responsive load following, rapid ramp rates, power factor improvement (reactive power compensation), and system protection. Electrical efficiencies are high with excellent prospects for further improvement. Fuel cells are also well-suited for cogeneration applications. Furthermore, a fuel cell's efficiency is largely independent of its size. Fuel cells can operate at half their rated capacity while maintaining high fuel-use efficiencies.

Fuel cell power stations located close to loads can also reduce costly transmission lines and transmission losses. Possibly more important, fuel cells can reduce utility dependence upon transmission systems for wheeling power.

Substitution of fuel cells for conventional power plants should improve air quality and reduce water consumption and waste water discharge. Fuel cell power plant emissions are ten times lower than those specified by the most stringent environmental regulations. Fuel cells also produce lower carbon dioxide (CO2) emissions than conventional generation, a question of increasing concern due to the so-called "greenhouse effect."

Because the electrochemical reaction of the fuel cell produces water as a by-product, little if any external water is required for power plant operation. This low water use is in marked contrast to large steam electric power plants that require massive quantities of water for cooling. Waste water discharge from fuel cell system are so low and the quality is superior compared with conventional fossil-fueled power plants, requiring no pretreatment prior to disposal in many communities.

The quiet, electrochemical nature of fuel cells eliminates many of the sources of noise associated with conventional steam-powered systems, thus easily complying with OSHA (Occupational Health and Safety Administration) standards. No ash or large volume wastes are produced from fuel cell operation. Land requirements are acceptable, and connecting transmission corridors are not required as in the case with outside power sources. Because of their comparatively small size, absence of a combustion cycle, state-of-the-art safety systems, and low pollutant emissions, fuel cells are among the most environmentally acceptable methods of energy conversion.

The potential of fuel cells to break through the efficiency barriers now being met by all conventional generation cannot be overemphasized. As a developing technology, fuel cells should see significant efficiency improvements. Over the next 15 to 20 years, more advanced fuel cell designs such as molten carbonate and solid oxide may be able to demonstrate efficiency improvements on the order of 50 percent or greater.

Additional research is needed to address basic materials problems so that the economics of production and operation of fuel cells can become more favorable. Therefore, APPA opposes the proposed cuts in fuel cell research, and supports at least FY 90 funding levels adjusted for inflation for FY 91.

DOW CORNING

at the Leading Edge

March 22, 1990

The Honorable Sidney R. Yates
United States House of Representatives
Washington, DC 20515

Dear Representative Yates:

My name is Allan Alanko and I am an employee of Dow Corning Corporation. Thank you for this opportunity which allows me to offer testimony on energy related issues that are important to our national interests.

I support an increase in the amount of funds requested in the F.Y 1991 budget for the Department of Energy's program on Advanced Extraction and Processing Technology which contains effort to convert gas to liquid fuels. This program will be severely curtailed if adequate funding levels are not restored and additional funds are not allocated to explore new areas to increase energy productivity. The American Chemical Society indicated the United States lead in technology development is being eroded. Our high technology industries trade surplus has shrunk from $27 billion in 1980 to only $0.6 billion in 1987. In that same year (1987) 40 % of U.S. patents were issued to foreign investors. This rapid erosion of our leadership position must be a national priority with government and industry working together to insure future domestic prosperity.

This testimony describes Dow Corning's interest in pursuing a joint research project to convert methane to methyl chloride by the oxyhydrochlorination (OHC) of methane with hydrogen chloride. This synergistic project offers a unique opportunity for gleaning benefits in three different areas; silicones, transportation fuels, and value added chemicals. The DOE will not be able to participate in this technology development program if Congress does not allocate the required program funds for F.Y. 1991.

Dow Corning proposes a process development project funded by Dow Corning, Gas Research Institute, and the U.S. Department of Energy at 33 % of the cost shared by each participant. We expect Phase I of the project to cost about $3,000,000 and

DOW CORNING CORPORATION, MIDLAND, MICHIGAN 48686-0994 TELEPHONE 517 496-4000

require 30 - 36 months to complete. The successful completion of Phase I would pave the way for Phase II which would be a commercial demonstration of the technology. The utility of the process from Dow Corning's point of view would be for the manufacture of our primary product, silicones. Methyl chloride can also be converted to gasoline by pyrolysis over molecular sieves. This has been demonstrated in a small scale at the Pittsburgh Energy Technology Center and has resulted in industrial interest. This chemical route to methyl chloride eliminates several process steps for gasoline and silicones synthesis. The historic development of the OHC process for methane to gasoline conversion is parallel to the proposed silicone process. Both processes utilize CH3Cl as an intermediate and require recycling anhydrous HCL. The existing silicone process manufactures CH3Cl from methanol and HCl.

Dow Corning safely handles millions of pounds of methyl chloride and HCl annually in the manufacture of silicones. This process expertise puts us in a unique position to develop and commercialize the most difficult phase of the OHC process, MeCl production. We feel the development of this technology will position the conversion of methane to gasoline as a technically viable process for an alternative route to transportation fuel in addition to providing methane as a feedstock for value added chemicals and materials.

I have prepared and attached a one page synopsis of our proposal that I would like read into the record. The proposed funding arrangement would require 33 % DOE funding and provide excellent leveraging of the taxpayers dollar. Thank you for this opportunity to testify to your Subcommittee on Interior and Related Agencies.

***Project Proposed:**
Process Development for Selective Production of Methyl Chloride by Oxyhydrochlorination of Methane

***Project Objective:**
Develop a commercially viable process to manufacture MeCl from methane and hydrogen chloride.

***Proposed Participants and Cost:**

Participant	Location	Cost Share
Dow Corning Corporation	Midland, MI	$1,000,000
Gas Research Institute	Chicago, IL	$1,000,000
US Dept Of Energy (PETC)	Pittsburgh, PA	$1,000,000
Total Cost		$3,000,000

***Expected Benefits**

1. Key technology development for methane to gasoline conversion, value added chemicals and silicones.
2. Maintain domestic leadership in methane technology.
3. Development of technology for methane utilization.
4. Reduced cost for intermediates synthesis.
5. Improved global competitiveness for domestic industry.
6. A step toward domestic energy independence.

***Location:** Carrollton, KY

***Key Contacts**

Gary Bokerman	Dow Corning	Carrollton, KY	502 732 4371
Allan Alanko	Dow Corning	Midland, MI	517 496 6043
Pete Barone	GRI	Chicago, IL	312 399 8281
Gary Steigel	US DOE	Pittsburgh, PA	412 892 4499

***Key features of technology.**
The OHC process will provide methyl chloride from methane and hydrogen chloride. Methyl chloride is a key intermediate for manufacturing gasoline via the OHC route, is an intermediate for manufacturing silicones, and a raw material for a variety of other value added chemicals. Dow Corning currently manufactures large quantities of methyl chloride and recycles hydrogen chloride in its existing process which utilizes methanol. Their internal demand for methyl chloride and Dow Corning's manufacturing expertise for safely handling these materials make them ideal participants to undertake this project which is expected to last 30 - 36 months.

TESTIMONY OF DR. MOMTAZ N. MANSOUR

PRESIDENT OF MANUFACTURING AND TECHNOLOGY CONVERSION INTERNATIONAL, INC.

BEFORE THE
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

My name is Momtaz N. Mansour and I am the President of Manufacturing and Technology Conversion International, Inc. I appreciate the opportunity extended by the Committee to testify and therefore, I will be brief and to the point.

I wish to brief the Committee on the technology of resonant pulse combustion, its applications and the additional FY-91 funding needs for its development.

Resonant pulse combustion is a combustion process that promotes combustion-induced oscillations to effect a large number of process benefits. The principle of pulse combustion was used by Germany during World War II to propel the V-2 bomb. Today the application of resonant pulse combustion within the energy program encompasses a number of revolutionary technologies for coal utilization, waste-to-energy applications and industrial processes. Within the DOE Fossil Energy and Small Business Innovative Research Programs, resonant pulse combustors are employed in a number of cornerstone applications as described below.

Slagging pulse coal combustors are being developed under the DOE/PETC program for the use of coal instead of oil and gas in industrial boiler retrofit applications. In this application the potential is simply enormous due to a number of considerations. Industrial boilers consume significant amounts of oil and gas in this country and given the appropriate advanced coal combustion technology, most such boilers could be retrofitted to burn coal in an environmentally clean manner, thus reducing oil and gas consumption while protecting the environment. Results from the current Pulse Coal Combustor program at DOE/PETC have established that standard grind, high ash and high sulfur coals can be used with this technology, achieving a 99.9+% carbon conversion, less than 100 ppm NO_x production, more than 75% sulfur capture and 97+% ash rejection in the form of slag. Thus, this technology has the promise of being a cornerstone of firing coal, instead of oil and gas, in industrial boilers with superior environmental performance without the expense of first beneficiating the coal. The technology also has significant potential for both export of equipment and coal to Europe and other oil- and gas-dependent allied nations. This technology is now being scaled-up to 15 MMBtu/hr firing rate in a system prototype configuration and needs $1.4 million in additional FY-91 funding to support this development.

In programs under the direction of DOE/METC, resonant pulse combustion is being employed for advanced gas turbine/direct coal-fired combustor island applications, advanced atmospheric fluidized bed hybrid combustor systems and second-generation combined cycle pressurized fluid-bed systems.

In the case of direct-fired gas turbines, the technology employs standard grind, high ash, high sulfur coal as the fuel of choice. Ash and sulfur removal take place in the compact combustor island made possible by innovative use of the process of resonant pulse combustion. Given the success of this development effort, standard grind, high ash, high sulfur coal can be used in direct-fired gas turbines and combined cycle gas turbine systems revolutionizing power generation in this country and again minimizing the need and cost of front-end coal beneficiation. Capital and operating costs of such systems are simply dwarfed by present-day gasification combined cycle plants. The program needs $1.5 million in additional FY-91 funding for this extremely important development.

The advanced hybrid pulse combustion/atmospheric fluid-bed system employs a pulse coal combustor that is down-fired in an atmospheric fluidized bed. Coal fines, which are the source of problems in fluid beds, are burned in the down-fired pulse combustor. The oscillating jet flow from the down-fired pulse combustor is employed to enhance the performance of the fluid bed which only burns large coal particles. The hybrid system, therefore, provides a superior combustor system to burn unclassified, crushed coal in an environmentally acceptable manner. The technology lends itself especially well to small systems in the size range of 10,000 to 50,000 pounds/hr of steam which is not only a significant target for the displacement of oil and gas in this country but resolves the long-standing issues of scale-down of presently available systems. Even in present-day large commercial systems, the technology can be used to solve the inefficiencies and cost presented by their inability to burn coal fines. The technology is now entering the field-test stage and requires $2.0 million in additional FY-91 funding.

Concepts employed for the direct-fired gas turbine system and for the hybrid pulse combustor/atmospheric fluid-bed combustor have further been combined to give rise to an advanced, second-generation, pressurized, fluid-bed power-generating system fired with unscreened crushed coal. In the pressurized, fluidized bed technology, a "trim" pulse combustor island, fired with the coal fines, is employed to increase the turbine inlet temperature while removing ash and sulfur pollutants. This technology is targeted for small combined-cycle power generators and cogeneration equipment in the 3.5 to 10 MW_e size range. The technology is directed to displacement of similar size units now being fired with oil and gas. This technology is in the early stage of development and requires $0.7 million in additional FY-91 funding.

It is with a great deal of pleasure that I also report to the Committee a success story of the DOE/Small Business Innovative Research (DOE/SBIR) Program. The technology being reported here is related to coal gasification, waste-to-energy and industrial processing applications.

The technology was initially born under the DOE/SBIR program in 1985 for biomass gasification and is now entering the full-scale field test and commercialization stages. This technology also employs pulse combustion but applied to an indirectly heated thermochemical conversion reactor. The technology gave rise to the only process in the world for black liquor recovery without smelt formation and the production of clean, hydrogen-rich, medium Btu gas. The technology will also be employed in the steam reforming of paper mill sludges, a wide spectrum of biomass feedstocks, sewage sludge, heavy liquor hydrocarbons, lignite and other low-rank coals as well as in the mild gasification of coal for the production of a suite of gaseous, liquid and solid products. The implications of this technology are simply vast to both the energy sector and the industrial sector for waste disposal and chemicals processing.

Field-test activities of this technology are now being implemented for black liquor recovery, paper mill sludge steam reforming and biomass gasification via cooperative agreements between DOE, industry and the California Energy Commission. These cost-shared programs are under the auspices of the Deputy Assistant Secretary for Conservation and the Deputy Assistant Secretary for Renewable Energy. In FY-91 funding the program needs $2.6 million for field testing the black liquor recovery system, $1.8 million for field testing the paper mill sludge steam-reforming process both at the industrial scale (1 and 2 tons/hr) and $1.5 million for sewage sludge and municipal solid waste steam-reforming processes at the pilot-scale.

Last, but by no means least, it is important to discuss the Small Business Innovative Research (SBIR) Program where most of these technologies were born. The efficient and professional manner by which the DOE/SBIR program is being implemented is commendable. To further provide the agency with means to implement new and useful ideas, I recommend to the Committee the following measures.

First, the program should be allowed to use 2% of its budget for technical support services needed to handle the large number of proposals and to improve the quality of the technical proposal review process by reducing the large administrative work load on the DOE technical staff and outside reviewers. Second, filing patents, particularly overseas, should be made an allowable cost under the DOE/SBIR funding in order to protect U.S. companies' rights to the technology, thus implementing the ultimate intent of the program in the first place: U.S. worldwide supremacy in technology. Third, the Commerce and State Departments should be directed to create an SBIR assistance function to assist U.S. Phase II SBIR winners in securing patents in countries overseas, particularly in those countries that are known to be difficult in the granting of patents to U.S. firms.

The above measures are essential; otherwise, the U.S. small firm innovations would simply be acquired by overseas firms, without any difficulty and this would compromise the parent objective of the SBIR program.

In closing, I do thank the Committee for the opportunity to testify and I remain available to both the Committee and its Staff for any further discussions or elaboration on the issues I have brought to your attention.

Associated Governments of Northwest Colorado

Statement in Support of An Oil Shale Demonstration Project

Larry McNeese, AGNC Chairman
March 20, 1990

The Associated Governments of Northwest Colorado (AGNC) supports the funding of a joint industry, state and federal government proof-of-concept oil shale demonstration project.

The roots of this project began in June, 1986, when the Associated Governments of Northwest Colorado convened a workshop in Meeker, Colorado to assess the need for continued oil shale research efforts. Public and private officials interested in oil shale development attended the Meeker Conference to:

> "address the Research and Development void for alternative oil shale technologies now apparent with the recent termination of the U.S. Synthetic Fuels Corp. and decommissioning of the D.O.E. research facilities at Anvil Points."

At the Meeker Conference, an "Oil Shale Action Committee" was formed as a coalition of private industry and government officials from Colorado, Utah and Wyoming to develop an oil shale research program. This research program entitled "A Western States Enhanced Oil Shale Recovery Program" has been partially funded by Congress for the past three years. In 1990 this has included initial funding of a plan and justification for a "proof-of-concept" oil shale demonstration project.

The proposed project would involve the construction and operation of a 1200 barrels-per-day shale oil facility. After a 3 year construction period the facility would operate in a demonstration mode for a period of up to 7 years, gathering data on technical viability, cost, environmental protection and social impact. When information about these factors is sufficient to satisfy those concerned, and when world oil prices justify it, the project could be expanded with 100% private financing to a commercial size venture of about 23,000 barrels-per-day operation. Also the technology developed could be transferred to other oil shale sites.

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Occidental Oil Shale Inc. has indicated it would fund up to 50% of the proposed demonstration project at the CB lease site in Rio Blanco County. The net cost of over ten years has been estimated to be about $200 million. Oxy would operate an MIS underground retorting system with a fluidized bed combustion power plant. Oxy would make the site available to test alternate above ground retorting and other technologies.

Reasons for Government Support of an Oil Shale Demonstration Project.

1. This country is not prepared to meet the next energy crisis.

There is at least a 10 year time lag estimated for development of commercial scale oil shale projects. We should not wait for the next oil shortage crisis to resume research efforts. The Secretary of Interior in 1988 predicted that we will have such a crisis, with long gasoline lines again, within the next 5 years.

2. This is a research project, not a commercial scale venture.

The project would involve operation of multiple underground MIS retorts producing 1200 barrels-per-day. This would allow testing of technological improvements and testing of environmental and socio-economic impacts at a reasonable scale before a commercial size operation is attempted. A commercial scale venture would be 100% privately financed. The Oil Shale Action Committee concluded that an intermediate scale demonstration project is needed to bridge the gap between smaller scale research projects and commercial scale ventures. This will help bring down the costs of oil shale development.

3. The U.S. Government needs to continue an oil shale research program.

One of the things that has made America strong is a commitment to research and development efforts. We should not let OPEC and foreign interests dictate when we start or stop energy research projects. The U.S. Department of Energy needs to address this problem with a U.S. Government effort. The decommissioning of the Anvil Points facility leaves DOE with no active oil shale demonstration facility.

Currently only 3% of the U.S. fossil fuels research program is devoted to oil shale research. Yet, the U.S. government owns more than 80% of the oil shale resource base. The Oil Shale Action Committee found that virtually all privately funded research activities have been abandoned.

4. Development of the oil shale resource is important for national security.

Development of oil shale for liquid transportation fuel should be an unwavering national priority. The Secretary of Defense has certified that shale oil products are needed for national security reasons, expecially for the U.S. Air Force.

This country is again importing close to 50% of its oil supply. And more than 50% of our imported oil comes from OPEC countries. U.S. national security is at stake on this issue. In fact, in January 1990, imports accounted for 54% of domestic oil usage. This is an all-time high! It surpasses the previous high of 51.8% set in July, 1977.

5. The cost of oil imports are the single largest component of the U.S. balance-of-trade deficit.

There is a national debate concerning imports of manufactured goods from Japan and other countries. Yet 42% of the balance-of-trade deficit is the cost of imported oil. This cost is projected to escalate as oil prices increase. This is tremendous transfer of wealth to foreign countries.

6. U.S. domestic oil production is decreasing at an alarming rate.

In 1989 this country suffered its worst ever decline in oil production - a 6.8% decrease. The Rocky Mountain Region production dropped by 7.1%. We are becoming more and more dependent on imported oil.

7. The U.S. Government owns more than 80% of the oil shale resource.

In Colorado, Utah and Wyoming the bulk of the oil shale resource is located on federally-owned public lands. There is an obligation to future generations to develop this government owned resource so that future generations won't always be potential hostages to the OPEC cartel.

8. The oil shale resource represents trillions of dollars of potential revenue to the state and federal governments.

Since these resources are located on federal lands they are subject to U.S. leasing royalties. These royalties are shared 50-50 between the state and federal governments. With estimates of up to 1 trillion barrels of recoverable oil the potential royalties could exceed several trillion dollars.

9. There is a need to develop sound environmental protections for oil shale development.

A demonstration size project will be large enough to test the air water quality impacts of oil shale development and should take advantage of this time period before commercial scale oil shale production is needed.

The in-situ technology proposed to be demonstrated has certain environmental advantages. These advantages need to be demonstrated and impact factors confirmed on a multi-retort sustained basis.

The demonstration project site will also accomodate alternate above ground retort technologies and the associated spent shale disposal testing. The fluidized bed combustion system will also provide environmental benefits. The use of oil shale in this system provides a built-in remover of sulfur from the gases emitted from the project. This benefit also needs to be tested at demonstration scale.

The Department of Energy feasibility study (DOE/METC - 86/6046) in 1986 concluded that an oil shale development facility would help evaluate the potential consequences of oil shale development on air and water resources.

10. The Land based production of oil shale may have environmental advantages over continued exploration and shipping of off-shore oil resources.

Recent oil spills and off-shore drilling ruptures have damaged fragile ocean shore environments. Development of the oil shale resource, together with energy conservation measures, could help alleviate some of the pressure to develop these off-shore resources, especially in fragile areas.

Not only are tanker "spill" problems growing, but it has been reported that more than 200 oil tankers were "sunk" during the Iran/Iraq conflict. Unrest in the mid east is still a potential problem threatening world oil supplies.

11. The Oil Shale Demonstration Project will help alleviate the severity of boom/bust cycles in the oil shale region.

The proposed project would provide up to 650 construction jobs followed by a permanent job force of 150 to 200 employees.

The DOE Feasibility study in 1986 concluded that an oil shale development facility would help alleviate the severity of boom/bust cycles in oil shale country. This is very important to the citizens and local governments in our region.

The timing of the project is good from a socio-economic standpoint. The northwest Colorado region is still recovering from the most recent energy bust cycle. Although this bust cycle was not entirely related to oil shale development since oil, gas and coal activities also declined during the past few years, oil shale was the most visible component.

The Oil Shale Demo Project could utilize and augment the Unocal shale oil upgrading facility and help provide a resource base for the Western Slope Refinery at Fruita, Colorado. Longer term, shale oil could be shipped by existing pipelines to Salt Lake City to alleviate a decline in the supply of conventional petroleum to that region.

Preliminary results of a study being conducted by the Colorado Dept. of Local Affairs indicates that the demonstration project will provide up to $10 million in local revenue and up to $9 million in state revenue with no public infrastructure needs to be added to accomodate the population generated by the project.

Summary

The proposed Oil Shale Demonstration Project would be an excellent example of a cooperative public-private research program. U.S. Senator Tim Wirth advocated just such a project in the attached editorial.

The project has solid industry support through the Oil Shale Action Committee and the Rocky Mountain Oil and Gas Association.

The project would address national energy and national security needs. It would provide for a sound environmental and socio-economic approach to oil shale development.

What is the alternative to supporting this project? To do nothing, and wait for the next energy crisis? NO!

The proposed proof-of-concept oil shale demonstration project is a sound technology development proposal and will be a good investment for the nation as well as the Rocky Mountain Region. The AGNC recommends the multi-year federal funding of this project.

Attachments

Thursday, March 15, 1990 — Glenwood Springs (Colo.) POST — Page 5

Another oil crisis threatens, yet U.S. never learned lesson from the last one

By JOHN CUNNIFF
AP Business Analyst

NEW YORK (AP) — Into that already stuffed file of "lessons we should have learned but didn't" you may drop the latest data on oil imports, which in January reached the highest level in 12 years.

Not only are imports rising, domestic production also is falling, and is now lower than it was two decades ago.

Petroleum imports in January reached 9.1 million barrels a day, or more than half what is consumed in the United States, a nation that has enormous fuel reserves available.

At the same time, domestic crude oil production dropped in January to just 7.4 million barrels a day, more than 5 percent lower than a year earlier and 20 percent lower than levels of about four years ago.

Foreign oil sources are being relied upon more each year, domestic sources less each year, a remarkable trend in terms of history, geography, economics and national security. Among them:

- The economic destruction in the form of inflation, soaring interest rates and reduced domestic output that resulted from the oil embargo of the 1970s.

The attitude is similar to that which preceded the crises of the 1970s. America, suggests economist Edward Yardeni, one of a relative few economists who include the problem in their analyses, is as vulnerable now as then.

- A vow by Americans in all walks of life, from the individual car owner and homeowner to the White House, never again to be caught short of oil because of foreign limitations on supply.
- The balance of payments problem. Oil imports probably account for as much as $50 billion of the gap between imports and exports.
- A successful conservation effort by the American people, one that seemingly could have been maintained almost effortlessly.
- An assured market for domestic production, made possible by the long-term growth of the American economy.
- The demonstrated ingenuity of Americans in developing more fuel-efficient products, to say nothing about alternative sources of energy.

Incredibly, there is little observable effort being made to rectify the situation by the federal government. Little mention of the situation is made in the detailed forecasts of economists.

On the edge of crisis, the oil problem is discussed like the weather, the assumption being that tomorrow, no matter what anyone does, there will be oil to burn as surely as there will be a sky up above.

The attitude is similar to that which preceded the crises of the 1970s. America, suggests economist Edward Yardeni, one of a relative few economists who include the problem in their analyses, is as vulnerable now as then.

The impact of any increase in the price of oil, or shortage in supplies, is almost instantaneous, and the reminder is as recent as now, when oil prices still reflect the unexpectedly severe cold of December.

You cannot run factories, homes, schools or churches without fuel. You cannot distribute food. You cannot draw water in high buildings; in fact, without fuel you cannot even breath in some. You cannot see in the night.

THE DENVER POST

BUSINESS NEWS

Friday, February 16, 1990

Oil imports surge to 13-year high

Record cold weather blamed for 14.5 percent jump in January

Denver Post Staff and Wire Reports

WASHINGTON — U.S. oil imports surged to record levels in January because of extremely cold weather, the American Petroleum Institute said yesterday.

Total imports of crude and refined products jumped to 9.13 million barrels per day, up 14.5 percent from 7.98 million barrels per day in January 1989, the first time since 1977 that imports exceeded 9 million barrels a day, the institute said.

Imports accounted for 54 percent of domestic deliveries, surpassing the previous high of 51.8 percent set in both March and July of 1977.

The figures were somewhat exaggerated because of the record cold that hit much of the country in December, depleting heating-oil stocks. The institute estimated that the January imports were about 1 million barrels per day higher than normal.

"Although temporary factors contributed to January's surge in imports, these developments are also the product of longer-term trends, namely, the continued decline in domestic crude oil production and until recently, the growth in consumption," the group said.

The heavy reliance on foreign oil reflects the "self-defeating" tax structure left over from the oil boom of the mid-1980s, said Tom Vessels, president of the Independent Petroleum Association of Mountain States and Vessels Oil and Gas Co., both based in Denver. U.S. companies are not able to drill enough wells to keep up with consumption.

"An Energy Department study two years ago said it would take until 1995 to reach this level of oil imports," said IPAMS' executive director, Ken Wonstolen.

The situation calls for two policy steps, he said. Congress must act this year on tax incentives for the industry and the country must learn to use more natural gas to stimulate the domestic industry.

Tax incentives should include a tax credit for new drilling, elimination of the alternative minimum tax, and the "unconventional fields credit" should be extended and restored for tight sands gas.

But just as December demand climbed on the back of the cold weather, a January warm spell chilled demand, it said.

As a result, total inventories rose 33 million barrels, in sharp contrast to an average decline for the month of about 8 million barrels in recent years.

Replenishing depleted stocks in January meant strong refinery activity, the institute said.

Distillate fuel oil output jumped over 6 percent last month to its highest January level since the late 1970s.

Distillate imports rose by nearly two-thirds to about 500,000 barrels per day, a record, while products imports rose overall by 13 percent to nearly 2.9 million barrels per day.

Total deliveries slipped by 1.5 percent or 265,000 barrels per day in January, led by a 3.6 percent decline equal to 120,000 barrels per day for distillate fuel as a result of warmer than normal weather.

The only products for which demand increased last month were gasoline and kerosene jet fuel. Gasoline deliveries rose 2 percent to 6.88 million barrels per day in January, an unusual gain.

ENERGY WOES

[illegible]

Rockies oil production slides 7.1%

By The Associated Press

Oil production dropped 7.1 percent in the Rocky Mountain region during 1989, outstripping a 6.8 percent decline in oil production nationwide, according to oil-industry figures.

Petroleum Information Inc. of Denver, an oil-industry information company, released figures Wednesday that showed the Rocky Mountain region yielded an average of 828,000 barrels of oil per day last year, down from 891,000 in 1988.

"That it (the decrease) was greater than the national average was expected due to the expense of operating in the Rockies, and the older, more established fields we have here," said Jess Cooper, executive vice president of the Rocky Mountain Oil & Gas Association, based in Denver.

Colorado oil production in 1989 averaged 85,000 barrels per day, a 5.6 percent drop from the 90,000-barrels-per-day average reported in 1988, Petroleum Information said.

The American Petroleum Institute in Washington, D.C., reported Wednesday that U.S. oil production averaged 7.6 million barrels a day last year, a decline of 553,000 barrels per day, or 6.8 percent, from 1988.

Petroleum Information reported that natural-gas production in the Rocky Mountain region improved slightly during 1988, rising from an average of 6.7 billion cubic feet per day in 1988 to 6.8 billion cubic feet in 1989.

In Colorado, natural-gas production averaged 1.4 billion cubic feet a day last year, up from 1.3 billion cubic feet in 1988.

Jack Ekstrom, Petroleum Information director of industry affairs, said nationwide figures showing an 8.2 percent increase in oil imports last year remind him of the period leading to the last oil crisis.

"We were in the same boat 10 years ago when the shah (of Iran) fell," he said. "And the constriction in supply was hard for the country to handle. Ten years later, it looks like we haven't learned a lot."

Oil imports surge as U.S. output suffers biggest drop

By The New York Times

America's oil production suffered its biggest single-year decline ever in 1989, falling by more than half a million barrels a day, the American Petroleum Institute reported yesterday.

Imports surged to make up for the drop in domestic oil production.

As a result, the nation's dependence on imported oil rose to a near-record 46 percent of demand last year, the highest level in more than a decade, according to the institute, the industry's main trade association.

Experts predict that the rapid slide in domestic production will continue in 1990 and beyond.

Oil is getting harder to find in the United States, they said, and prices, though rising recently, are still too low to stimulate enough drilling to counter the decline of aging oilfields.

The increased dependence on imports means that if oil prices increase, the nation's trade deficit will probably widen further.

The Commerce Department reported Wednesday that the trade deficit grew to $10.5 billion in November, the largest monthly gap in 1989.

Oil imports accounted for 42 percent of the November deficit.

Declining American output also means that the world's oil production capacity is once again increasingly concentrated within the members of the Organization of Petroleum Exporting Countries. OPEC's ability to influence prices grows as oil customers become more dependent on its supplies.

The trend of falling American oil output has been apparent since the mid-1980s.

But Dr. Edward H. Murphy, the petroleum institute's director of finance, accounting and statistics, said that last year's record drop was nonetheless "dramatic," adding that there is little prospect that the production decline will be reversed anytime soon.

Thomas R. McHale, an economist at Drexel Burnham Lambert, said, "We're facing a unanimous belief that domestic production isn't going to go up again unless we have $40-a-barrel oil."

American production last year was at the lowest level since 1963, a time when domestic demand was roughly half what it is now, and imports were 16 percent of demand.

United States production will continue to drop because exploration dwindled in the late 80s, when oil companies cut their spending because of low oil prices.

Azerbaijan unrest affects oil supplies

By The Chicago Tribune 12/18/89

CHICAGO — Ethnic strife in Azerbaijan, which poses one of the most serious challenges to reform in the Soviet Union, soon may pose a similar threat to the nation's centrally planned economy.

And energy consumers around the world could be handed a higher bill — and the Organization of Petroleum Exporting Countries a hefty pay raise — as a result.

Azerbaijan, an Indiana-size chunk of land between the Caspian Sea and Iran, was the original oil province of the Russian Empire. It was a gusher.

Today, largely because of old age and rapacious management, output is a trickle of what it was. Azerbaijan now accounts for only 3 percent of the Soviet Union's oil production.

But because of its deep roots in the Soviet oil patch, Azerbaijan's capital, Baku, remains a center of oil refining and transportation. More important, Baku still is home to most of the Soviet oil-equipment manufacturing and service industry.

Lately, however, it has been an industry in name only, providing neither goods nor services, say Western political and industry analysts.

Like almost everything else in the republic, Baku's oil service industry has been paralyzed since mid-January, when fighting broke out again between Azerbaijan's Azeri majority and its Armenian minority.

If employees were to return to work soon, analysts say the effects of the shutdown would be manageable. The supply of drilling equipment and spare parts would be disrupted for a few months. Then it would be business as usual.

Almost nobody believes events will play out that way, however. Though street-fighting and rioting apparently have been halted, Azerbaijan is relatively quiet thanks only to the presence of thousands of Soviet troops.

The Daily Sentinel [illegible]

Deja vu

Oil shale research needed to reverse dangerous trend

Tim Wirth

Long lines at the gas pump and crippling inflation fueled by soaring oil prices — unpleasant memories of the 1970s — could return soon. An oil shale research and development center in Colorado could be a solid step toward helping the nation solve its future energy problems.

The United States is very close to becoming as dependent on foreign suppliers as we were during the Arab oil embargo of 1974. Further, petroleum costs could soar above the records set in the last decade, once again triggering a world recession. Needless to say, the current turbulance in the Middle East figures greatly in this. That is what experts warned repeatedly before recent hearings of the Senate Energy and Natural Resources Committee, of which I am a member.

We are seeing a dramatic increase in Americans' consumption of oil for the first time since 1980. Meanwhile, the country is relying more heavily on imports. Half of the oil that Americans will use in 1990 will come from abroad, exceeding our dependence on foreign suppliers at the height of the oil crisis in the late 1970s, some another partment of Energy supports the feasibility of starting one or two oil shale research centers. The study pointed out that oil shale technologies now require enormous amounts of money just to get the facilities built and running. As a result, shale oil isn't competitive today and won't be until oil prices increase significantly. But "capital and operating cost advantages give shale oil the potential of being the first synthetic liquid fuel to be competitively commercialized," the report says.

These are reasons why the United States needs to do more research into the technologies for mining and processing the shale. We need to learn more about reducing these costs while improving the grade of crude oil produced.

We also know that there are a wide range of environmental problems that have never been fully addressed. For example, can we control ground water pollution, or even find a way to process the shale without generating heavy-metals pollution?

Further research is essential to making shale oil a viable alternative energy source. One way of doing the necessary research would be to establish a cooperative

RAMP
RURAL ABANDONED MINE PROGRAM
TENNESSEE SURFACE MINING COMMITTEE

TO : The Congressional Committee on RAMP
FROM: The Tennessee Surface Mining Committee
(twenty counties with abandoned coal mines)

I appreciate the opportunity to express the views of the Tennessee Surface Mining Committee to the members of the United States Congress. The Cumberland Mountains have furnished the United States industries with an abundance of coal for many decades. During the 1950 and 60s the coal mining industries did an enormous amount of profitable strip mining. During this time the environmental law were not in place and severe scaring was impacted on the landscape. After the mines became unprofitable the mine companies left Cumberland Mountains with scared natural resources and poverty stricken economy.

In 1977 public law 95-87 authorized a broad program for reclamation of abandoned mine. This law was enacted to force mine owners to reclaim any active mine operation before they left the site. The deep and strip mines operators were taxed on each ton of coal mined to offset the cost of reclamation. These proceeds are needed at the present time to reclaim these scared areas on the Cumberland Mountains.

These abandoned mine sites are a major factor to the environment of the Cumberland Mountains. With abandoned mine pits 100 feet deep and with 50 feet of acid water the environment of the residents is very fragile. These sites are a real hazard to the people who live in this area and the towns that lie at the foot of the mountains. The acid soil runoff and contaminated water which enter the stream have destroyed the natural wildlife that once thrived in this area. Tourism such as hikers or the original cumberland gap pioneers cannot endure the hazards of 100 foot highwall that may fall at any time. These Cumberlands Mountains need your help in restoring the beauty that once existed here.

We are not asking for new appropriations, instead, we need the return of fund that are being held in reserve. Without these funds the reclamation can not proceed at the speed needed. During fiscal year 1989, 100 new contracts were signed obligating $7.99 million for reclamation of 922 acres. The Ramp program has eliminated over 1,545 health and safety hazards, controlled erosion on 8,157 acres and the water quality improved in 57,777 acres of lakes and 536 miles of streams since the program began in 1977. This program is funded thru the fees issued to mine owners and is not funded thru the Federal Government. In Tennessee alone there are 46,000 acres of abandoned coal mined land with 12,000 acres classified as critical. With the assistance of Local, State and Federal Goverments the RAMP program will be carried out and be a showcase, to our nation, what cooperation will accomplish.

Russell Keck

Russell Keck
Tennessee Surface Mine Chairman

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March 15, 1990

The Honorable Sidney R. Yates
Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

On behalf of the Western Research Institute (WRI), we respectfully submit the following statement for the record as part of the Subcommittee's review of the fiscal year 1991 appropriations request for the U.S. Department of Energy's Office of Fossil Energy research and development programs.

The Western Research Institute is located in Laramie, Wyoming on the University of Wyoming campus. It employs 150 people engaged in important energy and environmental technology research. Since the late 1930s, WRI has conducted research ranging from oil recovery and coal conversion methods to development of advanced fuels.

The Nation's continuing reliance on oil imports and the need to reduce air pollution require a strong and aggressive commitment to fossil energy research and development. This will promote technologies and practices that can reduce our dependence on foreign oil supplies and improve air quality.

We strongly urge, therefore, that the Subcommittee approve a fossil energy research and development appropriation that provides at least an amount equal to the current year funding level of $416 million. The economic and environmental policy concerns of oil imports and clean air deserve a greater commitment than the Administration request of $202 million.

CURRENT RESEARCH PROGRAM AND THE NEED TO CONTINUE WRI RESEARCH

Since 1983, WRI has cooperatively worked with the Office of Fossil Energy, conducting important research into innovative and alternative energy technologies. This research has been undertaken through a multiyear cooperative agreement between the Department of Energy and WRI. The terms of this cooperative agreement call for a total funding in fiscal year 1991 of $5.5 million. This amount is to be divided between baseline cooperative agreement research activities and jointly sponsored research (JSR). We strongly request this level of funding in fiscal year 1991.

The baseline program involves ongoing research considered important to the Nation's long-term energy security. These projects include:

- fluid-bed retorting of oil shale to produce shale oil more cost-effectively, and disposal of retorted shale in an environmentally acceptable manner
- improved methods for tar sand bitumen recovery and upgrading to value-added products
- monitoring and remediation of groundwater quality at former underground coal gasification field sites
- development of advanced processes for western subbituminous coals including the manufacture of value-added products for export to the Pacific Rim
- evaluation of enhanced oil recovery methods at the petroleum reserve near Casper, Wyoming and modeling of contaminant transport in groundwater

JSR is a new program that transfers information and research findings to industry to support technology development and to accelerate commercialization. JSR is premised on two key notions. First, some federal research should involve the parties it is intended to benefit. Second, and equally important, JSR provides a mechanism that ensures innovative technology development that may be commercialized from basic research initiatives.

WRI is using JSR to work with industrial research partners on important projects including:

- Occidental Oil Shale, Inc.--Development of retort deluge procedures to quench retorts and remove groundwater contamination associated with commercial development of the C-b oil shale lease tract in Colorado using modified in situ retorting.
- Amoco--Evaluation of WRI's ROPE© process for enhanced yield and quality of products from retorting of Sunnyside tar sand in Utah.
- EPRI--Development of methods for utilizing coal ash to stabilize organic and acidic waste materials.
- Bell Lumber and Pole--Demonstration of WRI's CROW© process for in situ cleanup of coal tar wastes at manufactured gas sites and wood treating plants.

WRI is working with our industry partners on research and technology development that all parties (including the Department) believe important to future energy security and compliance with environmental mandates. Because of this progress, WRI is deeply concerned about the Department's lack of a specific request for this program. We, therefore, seek the Subcommittee's continued support of the JSR program. Specifically, we hope the Subcommittee will provide $2.5 million to support JSR projects as agreed to in the cooperative agreement. Without a direct commitment, it is virtually impossible to gain industry confidence to commit their limited research funds to proposed projects.

ENERGY SECURITY AND ENVIRONMENTAL PROTECTION

Worldwide energy prices generally remain stable. Projections for dramatic increases over the next several years were wrong. However, our dependence on foreign oil supplies has increased to the point where an economic threat to the Nation looms ever large. This threat is complicated with the concern over potential environmental hazards related to fossil energy supplies. These twin concerns offer an opportunity for the Department of Energy to reduce our dependence on foreign supplies of energy and to improve our environmental condition.

Specifically, a strong fossil energy research program that balances our energy needs with environmental protection is necessary. The Clean Coal Technology Program is a major commitment to this and should be supplemented by:

- improving the international competitiveness of coal, oil shale, and tar sand resources from all regions of the Nation by supporting research into innovative recovery methods and alternative products derived from energy feedstocks such as metallurgical coke, activated carbon, liquefied fuels, and asphalts

- researching methods and processes to reduce CO_2 emissions that may minimize potential global warming and increased energy efficiency

- researching and demonstrating technologies that can reclaim, recycle, or minimize wastes generated during production of energy resources or combustion of fossil energy supplies

- demonstrating the use of bioremediation at oil spill sites

- developing unconventional gas resources such as coal-bed methane and western tight gas sands.

- expanding research into co-processing of heavy resids as a means to reduce oil imports and as one alternative to expensive liquefaction processes

- improving the efficiency of conventional and alternative fuels such as the use of coal-diesel fuels, methane, and oxygenated fuels to support our transportation network

As the Department develops a final national energy strategy we urge it to give high priority to these research issues. Research is the backbone of our ability to respond to future energy needs and to remain competitive in the international energy market.

WRI especially believes that all coal reserves can serve as a commodity to reduce our trade deficit. Aside from the significant Pacific Rim markets for coal as an energy supply, research into promising coal processing technologies could be used to diversify coal's commercial uses. For example, coal could be used to produce a pure carbon product to supplement the market demand for activated carbon necessary to ensure safe drinking water supplies and to support hazardous waste site cleanups and general treatment of industrial wastes. Development of metallurgical coke from subbituminous coal offers another opportunity to expand our coal export market.

CONCLUSION

WRI understands the budget deficit and the severe limits it imposes on new program initiatives. Over the past several years, fossil energy research and development has enjoyed Congress' support. We hope that this unwavering commitment to our Nation's energy security continues with the emphasis on research and development maintained.

Sincerely,

Dr. James G. Speight
Chief Executive Officer

SUBMITTED BY THE AMERICAN PETROLEUM INSTITUTE
FOR THE RECORD
TO THE SUBCOMMITTEE ON INTERIOR
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
MARCH 16, 1990

The American Petroleum Institute (API) appreciates this opportunity to provide the Subcommittee with its views on a "Buy/Build America" amendment, such as the ones introduced in 1988 and earlier. API represents over 200 companies involved in all aspects of the oil and gas industry.

Many of API's members have a direct and substantial interest in any legislation which would impose a domestic construction/content requirement for offshore structures. The earlier amendments would have required that structures used on the federal Outer Continental Shelf (OCS) -- excluding offshore Alaska -- be constructed with at least 50 percent U.S. labor and materials. If a similar amendment is introduced in 1990, API would again strongly oppose its passage.

A "Buy/Build America" requirement would decrease offshore exploration and production activity, reduce domestic employment, and increase U.S. reliance on imported oil. Such an amendment also would impede federal deficit reductions by reducing government receipts from OCS development and production.

A domestic content requirement would also be contrary to international trade agreements to which the U.S. is a party, such as the General Agreement on Tariffs and Trade (GATT). This is one of the reasons both the Department of State and the U.S. Trade Representative have strongly opposed such amendments in the past. It would also undermine U.S. attempts to dissuade the European Community (EC) from imposing its own domestic content legislation. Such EC legislation, as part of the EC's effort to create a unified market of its members by 1992, could reduce U.S. steel and other exports to the EC.

Previous "Buy/Build America" amendments were proposed to aid domestic steel producers, steel fabricators and shipyards. However, the U.S. steel industry already receives protection from imports. Voluntary Restraint Agreements (VRAs) limits steel imports. And, the Omnibus Trade and Competitiveness Act of 1988 strengthened antidumping and countervailing duty trade remedies. These mechanisms have worked and will continue to do so.

In fact, domestic steel production is now near capacity, prices have risen, and higher steel industry profits have been reported. Indeed, steel fabricators are increasingly reporting to the government that domestic steel producers cannot meet their needs. The cost of imported steel has also risen and the dollar has fallen, improving the competitiveness of domestic steel. Further protection is not needed, especially at the expense of U.S. access to the markets of the its GATT partners and the European Community or at the expense of reduced U.S. security due to increased dependence on imported oil.

The U.S. is still the world's second largest producer and has a sizable resource base that can be explored and developed. However, much of the remaining U.S. resource base is more costly to explore and produce than oil elsewhere in the world. Lower oil prices since 1985, combined with high costs, have resulted in less domestic exploration.

Both active rigs and well completions in 1989 were less than half their 1985 level. This has accelerated the decline in production in the lower 48 states; daily production fell by more than 500,000 barrels in 1989. Indeed, domestic production in December 1989 was the lowest in 25 years.

Petroleum imports are rising and by the end of 1988 exceeded domestic crude production. The Department of Energy estimates that U.S. imports could reach 60 percent by the mid-1990s. Therefore, it is urgent that we find and develop new supplies of domestic oil and gas, especially from the federal OCS. A "Buy/Build America" amendment would discourage such efforts.

There are three major components in an offshore platform; the topside modules housing the operating equipment, the supporting steel jacket structure, and the piles driven into the seabed to secure the jacket. While portions of the structure may be obtained abroad, on a total cost basis, most of these structures have been obtained from domestic sources. The ongoing service and maintenance required through a project's life for topside equipment and components have consistently made domestic producers preferable for this costly, complex equipment.

Given the continuing depressed state of the oil market and numerous restrictions imposed on federal OCS leasing, the Minerals Management Service indicates that in the next 5 years no more than 5 new platforms would be needed for the California OCS, 5 new platforms for deep water (greater than 1,300 feet) Gulf of Mexico and 400 new shallow water platforms for the rest of the federal Gulf of Mexico OCS.

These structures would contain a total of about 1.2 million tons of steel -- about 235,000 tons of steel annually; this is less than two-tenths of one percent of 1989 U.S. raw steel production. Since most shallow water structures in the Gulf of Mexico are already produced domestically, the burden of a "Buy/Build America" amendment would fall most heavily on those few facilities projected for installation in deep Gulf waters and offshore California. This marginal benefit to the steel industry contrasts sharply with the costs and inefficiencies associated with a "Buy/Build America" requirement.

Three types of OCS oil and gas activities would be affected adversely by a "Buy/Build America" amendment. First, the costs of deepwater exploration drilling would increase. The large drilling rigs and drillships necessary to operate in the deepwater areas of the Gulf of Mexico are manufactured overseas because U.S. fabrication costs are so high. If an amendment were passed, U.S. fabricated rigs no longer would have to compete with rigs manufactured overseas. Limited competition and increased construction costs likely would increase the rents for these larger rigs and discourage OCS leasing and exploration, especially in frontier areas where large new discoveries are most likely.

Second, once discoveries are made in deep water, producers need the lowest cost and most advanced platform and equipment suppliers to maximize the development of new oil and gas discoveries. This is especially critical to the successful use of new technologies, such as tension leg platforms and compliant tower systems for production of deepwater discoveries.

Clearly, as deepwater Gulf of Mexico development begins to evolve, Gulf Coast fabricators will continue to produce elements of deepwater structures on an economically competitive basis. U.S. producers likely will remain the source of topside equipment and components. For example, Conoco is employing a tension leg well platform utilizing a floating platform and hull assembly in a deepwater project offshore Louisiana. The total project cost will exceed $400 million of which roughly 70 percent are being spent with domestic contractors and vendors.

Finally, the effects of a "Buy/Build America" amendment on West Coast OCS operations would be especially severe. Presently, all offshore fabrication yards in California are closed due to the depressed state of the petroleum industry and the slow pace of leasing. The time, cost and difficulty of obtaining state and local permits to establish such a yard for perhaps 5 production platforms in the next 5 years are substantial and potentially prohibitive. If a West Coast fabrication capability were established, a "Buy/Build America" requirement would ensure that it would charge very high prices due to its monopoly position.

Many of the effects of a "Buy/Build America" amendment would be felt in deepwater areas where prospects are good for major discoveries that will help prevent even greater U.S. dependence on foreign oil. However, additional costs imposed by a "Buy/Build America" amendment would be fatal to some promising projects. In any case, such an amendment would raise costs, reduce profitability and diminish the attractiveness of reinvestment in the additional exploration and production activities that must be undertaken to supply future U.S. energy needs.

In addition to the petroleum industry, domestic petroleum supplier industries -- for example, producers of topside equipment like pumps, valves, electronics, etc. -- would be harmed by the reduction in activity caused by a domestic content requirement. While some jobs might be maintained in the steel and fabrication industries, the U.S. could suffer a net loss of 16,000 to 25,000 jobs in the year of peak effect. More jobs may be lost if foreign governments retaliate and impose their own national purchase requirements, as the EC is now considering. The U.S. is currently a net exporter of drilling equipment and services and this could be reversed by retaliation for a "Buy/Build America" requirement.

Summary

At a time when the federal government cannot afford to lose revenue, passage of "Buy/Build America" legislation would reduce federal revenues and increase costs. It would discourage offshore exploration and development and would reduce the federal government's income from lease bonus revenues, rentals and royalty payments on OCS oil and gas.

Since 1985, oil consumption has increased, domestic exploration has fallen dramatically and domestic production has decreased, making the nation increasingly dependent on foreign oil. In addition to the national security concerns associated with such import dependence, oil comprises a large portion of the U.S. trade balance. In 1988, imports of oil cost the United States approximately $40 billion. Oil accounted for about 9 percent of the nation's total import bill. This is more than 25% of the estimated $138 billion trade deficit in merchandise for 1988.

The potential negative economic consequences of a "Buy/Build America" amendment far outweigh any benefits, especially in light of existing and recently strengthened trade remedies which protect all U.S. industries, including the steel industry. The amendment also would violate existing international trade agreements, put the U.S. in an untenable position in its efforts to prevent the EC from closing markets to U.S. exports in 1992, hurt the petroleum industry, and prove detrimental to the steel and fabrication industries whose interests it is intended to benefit. Clearly, a "Buy/Build America" amendment is not in the national interest.

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